The New England
Journal of Medicine

Copyright, 1946, by the Massachusetts Medical Society

Volume 234 FEBRUARY 21, 1946 Number 8

TRANSDIAPHRAGMATIC RESECTION OF THE VAGUS NERVES FOR PEPTIC ULCER*

FRANCIS D. MOORE, M.D.,† WILLIAM P. CHAPMAN, M.D.,‡ MILFORD D. SCHULZ, M.D.,§ AND CHESTER M. JONES, M.D.¶

BOSTON

DURING the last fifty years, a variety of surgical maneuvers have been developed for the treatment of cases of peptic ulcer‖ that may be broadly termed as intractable to therapy but are otherwise uncomplicated. According to Allen,[1] approximately 20 of every 100 patients suffering from peptic ulcer who present themselves to a physician do poorly under ordinary nonoperative methods of treatment. A sizable fraction of this group develop hemorrhage, perforation or cicatricial obstruction, obviously requiring surgical intervention. The remainder — estimated by Allen and Welch[2] as 10 per cent — stand as medical failures or as intermittently sick patients who, tied down to their diet and medication, still present symptomatic difficulties and an economic status far removed from that of a well man.

In these cases that prove refractory to medical treatment, surgery has in the past been directed at several objectives. One of these has been to increase the patency of the pylorus, another to produce some change in the relation between the acid gastric content and the alkaline duodenal or jejunal content, resulting in a neutralization effect of some type, and a third to ablate acid-forming cells, thus lessening gastric acidity.

That such physiologic objectives have not always been attained is easily demonstrated. Study of many patients after posterior gastroenterostomy reveals bile-free material in the stomach[3] that is of high titratable acidity and low pH. Subtotal resection leaves in place much tissue containing parietal cells[4] and is also compatible with high postoperative acidity,[5] although fundusectomy[5] has represented an effort to circumvent this physiologic contradiction. Subtotal gastric resection may owe its success largely to removal of the antral mucous membrane rather than to the ablation of parietal cells,[6–8] and there is experimental evidence[9–11] that the antrum occupies an important place, both in the normal secretory mechanism and in the so-called "ulcer mechanism." The occasional patient who remains chronically malnourished and develops peculiar postprandial symptoms following subtotal gastric resection brings to mind the possibility that this operation may be detrimental to the nourishment of some patients.[12]

The operative hazards of subtotal gastrectomy must be considered in evaluating this operation, and although they have been markedly reduced in recent years by doing the operation in stages[7, 13] or by removing the antral mucosa in the presence of an inflamed duodenum,[2, 8, 14] the operation still carries the inherent risks of an anastomotic gastrointestinal procedure. The postoperative incidence of stomal or jejunal ulcer following subtotal gastric resection is variously estimated at 2 to 8 per cent.[15,16]

It is a familiar observation that patients with peptic ulcer are worse during periods of so-called "stress."[17–19] Such experiences accumulating over the years have led to the conclusion in the minds of clinicians everywhere that there is a close correlation between events in the cerebral cortex and functional activity in the stomach. The work of Cushing[20] with duodenal ulcer in certain types of brain lesions furnishes corollary information bearing on this problem, and also suggests that changes above the foramen magnum can produce ulceration in the upper gastrointestinal tract.

The manner of connection between the brain and the stomach has been known for many years. The vagus nerves were first studied in relation to gastric physiology by Pavlov,[21] who showed in dogs that following section of both nerves gastric secretion in response to sham feeding and conditioned reflexes was lost. This bit of evidence alone

*From the Department of Surgery and the Department of Medicine, Harvard Medical School, and the Gastrointestinal Clinic, Massachusetts General Hospital.

This study was supported in part by a grant from the Josiah Macy Jr. Foundation.

†Assistant in surgery, Massachusetts General Hospital; instructor in surgery, Harvard Medical School.

‡Assistant in medicine, Massachusetts General Hospital, and Department of Medicine, Harvard Medical School.

§Radiologist, Massachusetts General Hospital.

¶Physician, Massachusetts General Hospital; clinical professor of medicine, Harvard Medical School.

‖In this paper the term "peptic ulcer" is used to apply to benign ulcerations of the esophagus, stomach, duodenum or jejunum. It is employed as a generic term for this group of ailments and is not intended to imply that pepsin is of special significance in their formation.

suggests that the vagus nerves constitute one of the main pathways, if not the main one, between the cerebrum and the upper gastrointestinal tract. Other possible pathways include the sympathetic and somatic nerves and circulating humoral factors. The sympathetic side of the autonomic nervous system is doubtless significant in the physiology of the upper gastrointestinal tract, and it is probable that one of its more vital functions is the conduction of afferent impulses,[22] many of which reach the conscious level and may be called viscerosensory fibers as well as regulatory fibers serving motor and secretory end organs.[23] Circulating factors involved in the secretory mechanisms of the stomach have been extensively investigated by many workers, chief among them Ivy[24] and his group at Northwestern University. The relation between the enteric hormones that they are studying and the antral hormones described by Edkins[9] in 1906, which may be involved in the success of ordinary subtotal gastrectomy, is not clear. As a working hypothesis, however, one might suggest that impulses coming down the vagus nerves stimulate end-organ cells in the antrum whose secretion is both internal and external, the external secretion becoming a small fraction of the digestive mixture of the stomach and the internal secretion serving as a local perpetuating mechanism to complete the process of digestion after the initial psychologic stimuli of the sight of food and its chewing and swallowing have ended.[10]

These considerations in patients with peptic ulcer are profound and far-reaching in their significance. Most patients with peptic ulcer are likely to have pain when the stomach is empty. The pain is actually relieved by eating, despite the fact that this produces more acid secretion, as frequently demonstrated in the ordinary gastric analysis. When, however, a gastric analysis is carried out through a twenty-four-hour or forty-eight-hour period, it will be seen that the taking of food, although it may increase the total chloride content and the total amount of gastric secretion, is actually accompanied by a decrease in acidity.[3] One may logically conclude from this that the secretory mechanism that operates on the fasting stomach is the one of the greatest importance in determining the therapy of patients with peptic ulcer. The evidence at hand suggests that neural factors are the important ones in the secretion and reaction of the fasting stomach, whereas the humoral factors play a leading role in the postprandial digestive process.

By this line of reasoning, one is brought to a possible approach to the vagus nerves in the treatment of peptic ulcer. There are many other considerations that form the background for this procedure, but those that have been mentioned above seem to be the most essential ones. Other less vital considerations are as follows. One of the drugs most effective in the treatment of early peptic ulceration is atropine. This drug apparently acts by altering the permeability of the cell to acetylcholine and thus blocking parasympathetic impulses at the end organ. If the parasympathetic nerve supply to the stomach and duodenum were adequately interrupted, one might reasonably assume that a permanent and complete atropinization of the area had been secured and could conclude that such a procedure might help the patient with peptic ulcer.

Another element of some significance has to do with the concepts that are broadly grouped under the term "psychosomatic medicine." As Cobb[25] has so aptly put it, the use of the term "psychosomatic" predicates a false dichotomy and possibly should be avoided. The fact remains, however, that disturbances in the mental realm may at times be translated into organic disease through the mediation of either neural or humoral pathways. Peptic ulceration probably falls into this group of ailments, and it is possible that decentralization of the stomach through section of the nerve supply would prevent such environmental factors from affecting the organ.

Surgical Background

After the work of Pavlov, interest in vagus effects on the stomach does not figure prominently in the literature, possibly owing to the rise and extensive use of posterior gastroenterostomy as an operative procedure and to the experimental work of Edkins.[9] In 1924, however, Stahnke,[26] in experiments involving chronic electrical stimulation of the vagus nerves, produced typical peptic ulceration in 2 of 5 dogs, a result that, although numerically unimpressive, is of considerable qualitative significance as regards possible mechanisms relating to clinical peptic ulceration.

In 1929, Hartzell[27] using dogs, demonstrated in a convincing manner three fundamental points relative to the vagus nerves. The first is that section of both nerves decreases the acidity of the gastric contents. The second is that this section cannot be adequately done unless it is made through the chest. The third point is that if the section is technically incomplete, the effect is disappointing and transient. Restudy of these dogs three years after the initial operation showed a return of the acidity.[28] This finding, among others, has prompted us to carry out the most complete vagus resection possible in the lower chest and upper abdomen.

In 1931, Beaver and Mann[29] published a short paper that is of the greatest interest in this field. They were working with the Mann–Williamson preparation, which, in their experience, produces ulceration in dogs in approximately 95 to 98 per cent of cases.* In the article mentioned, they describe three sets of experiments on dogs prepared

*In the Mann–Williamson[30] preparation, unneutralized gastric secretion pours into the upper jejunum, unprotected by the alkaline hepatic and pancreatic juices, which have been sidetracked into the lower bowel.

by the Mann–Williamson anastomoses. One group consisted of 3 otherwise normal dogs, another comprised 3 dogs with the sympathetic nerves cut, and a third consisted of 3 dogs with the parasympathetic supply to the stomach cut. The only animals that did not develop peptic ulcers were those in which the vagus nerves had been cut.

In 1922 Latarjet[31] and in 1932 Pieri[32,33] worked on vagus section in human beings, using the transabdominal route. Their results are difficult to evaluate, but it is important to observe that, although some relief was secured, the effect was apparently extremely short-lasting.

In 1926, McCrea[34] published a review covering the nerve supply to the stomach and its significance and discussed part of the physiologic mechanism involved. He pointed out that vagal section in the chest produces marked motor effects on the stomach. Most of these effects have been corroborated by our work in human beings.

During the last five years, following the work of Churchill and Sweet,[35] a large number of transthoracic gastrectomies have been performed in many centers in this country, the aggregate total of which must run to several hundred. Observations on patients of this type in whom both vagus nerves are sectioned at variable distances above the diaphragm have shown that although disorders of pyloric emptying may develop, those of pancreatic or hepatic function or absorptive ability of the upper small bowel do not. This indicates that vagus section at this level is not deleterious to the upper digestive mechanism.

Another recent surgical development of significance is the work of Smithwick[36] dealing with surgery on the other component of the autonomic system. Several fundamental considerations that are applicable to the vagus nerves have emerged from his work. The first relates to what one might call thoroughness of operation. Smithwick has shown that a lasting result can best be obtained by radical extirpation of the autonomic system involved. This fact, among others, has led us to perform a vagus resection in which the nerve is resected from just below the lung root to well down on the stomach wall. Smithwick has also shown that the autonomic nervous system regenerates rapidly, particularly through tissue planes and ordinary ligatures. This has led us to believe that ideally the diaphragm should be cut and interposed between the cut ends of the nerves.

With these considerations in the background, work in this field was begun at the Massachusetts General Hospital early in 1944, and to date 15 patients have been operated on.

For some time prior to 1944, Dragstedt and his co-workers[37] had been working with a similar procedure and had already operated on several patients and published a preliminary account of their results. Since then, Dragstedt[38,39] has published more of his findings in patients on whom this operation had been carried out. His observations have been most helpful to others working in this field, and to him should go the credit for reviving this apparently obsolete operation.

In studying our patients we have directed attention toward the qualitative and quantitative aspects of the secretory changes, as well as to alterations in motility, as recorded by the balloon kymograph, to motility, as gauged by x-ray examinations and to changes in afferent conduction of painful stimuli from the upper gastrointestinal tract. These results will be briefly reported so that the findings may be compared with other work going on at the present time[39,40] and so that a preliminary appraisal of the procedure may be provided.

Clinical Data and Results

A summary of the first 12 cases that were operated on is shown in Table 1. Two patients were women and 10 were men. Four patients had duodenal ulcer without other complications. One had a coexistent esophageal ulcer and Raynaud's disease. Two patients had jejunal ulcers in old gastroenterostomies, and 1 of these had a concomitant duodenal ulcer. Two patients had stomal ulcers following gastric resection. Two patients had gall-bladder disease as well as duodenal ulcer. One had a submaxillary carcinoma, controlled by neck dissection and x-ray treatment, as well as a duodenal ulcer.

These 12 cases represent some of the most difficult therapeutic problems encountered in this field. They were selected because of the long duration and intractability of the symptoms as well as the past and present complications. All the patients had had one or more rigorous terms of hospital medical treatment in an attempt at relief. They were chosen in the hope that good or bad results would soon become apparent and with the idea that a maintained good result was significant and not due to chance factors.

In addition to these 12 patients, 1 patient was operated on at this hospital by another member of the staff as a desperate measure because of repeated massive sublethal gastric hemorrhages. He did not have a duodenal ulcer, nor had he been shown to have peptic ulceration at any time, and he does not fall into this group of cases. The patient succumbed approximately forty-eight hours following the operation, owing to difficulties that were apparently related to the anesthesia but that could also have resulted from hyperirritability of the autonomic nervous system, with the setting up of vagovagal reflexes and resultant cardiac standstill. The case is mentioned because it should be remembered that, as is true of any open chest procedure, this operation carries definite hazards, and following this event, which took place early in our experience with this procedure, we have routinely

novocainized both vagus nerves above the point of manipulation and have given rather large doses of atropine either before or during the operation.

The report of the clinical results in these 12 cases must be regarded as an interim one, because it will be many years before this operation can in any way reach final evaluation.

As regards healing of the ulcer, in the uncomplicated duodenal ulcers no crater was visible by x-ray a week to ten days after the operation. In 2 cases, stomal ulcers following gastrojejunostomy required a longer time to heal but finally reached complete healing in three weeks. Follow-ups on all these patients have been carefully carried out, and most of the patients have been grateful for their treatment and have been co-operative in

TABLE 1.

Case No.	Hospital No.	Age	Sex	Diagnosis	Duration of Ulcer Symptoms	Previous Complications	Symptoms	Date of Operation	Result	Comments
		yr.			yr.					
1	454977	34	M	Duodenal ulcer	15	Bleeding (1944)	Mild pain	Aug. 1, 1944	Symptoms relieved; ulcer healed.	Possible recurrence, April, 1945; case restudied, June, 1945; ulcer now healed and patient well.
2	433311	42	F	Duodenal ulcer; esophageal ulcer; hiatus hernia; Raynaud's disease.	5	None	Epigastric pain	Aug. 4, 1944	Ulcer healed and pain relieved; symptoms from slow emptying bothersome for 6 mo.	Esophageal ulcer visible by x-ray April, 1945; dorsal, sympathectomies, April, 1945; case restudied, Aug., 1945; patient now well and without symptoms.
3	270852	52	M	Duodenal ulcer; metastatic cancer of submaxillary region.	18	Perforation (1927); bleeding (1929 and 1941).	Severe epigastric pain	Dec. 26, 1944	Striking symptomatic relief, with rapid healing of ulcer	Case restudied, August, 1945; excellent result maintained, both clinically and by laboratory studies.
4	479283	41	M	Jejunal ulcer; duodenal ulcer; polycythemia vera.	22	Perforation (1932); posterior gastroenterostomy (1932); bleeding (1938); anterior gastroenterostomy (1939).	Severe epigastric pain	Feb. 26, 1945	Striking symptomatic relief, with rapid healing of both ulcers	Case restudied, August, 1945; excellent result maintained, both clinically and by laboratory studies.
5	480224	61	M	Jejunal ulcer; possible paranoia.	32	Perforation (1925); posterior gastroenterostomy (1934).	Severe epigastric pain	March 6, 1945	Good symptomatic relief, with rapid healing of ulcer	Case restudied, August, 1945; good maintenance of result.
6	488327	54	M	Duodenal ulcer; possible psychoneurosis.	3	None	Atypical epigastric pain, unrelieved by alkali	June 8, 1945	Ulcer healed; one component of pain disappeared.	Patient still has some epigastric pain; poorly selected case.
7	169114	40	M	Duodenal ulcer	14	Bleeding (1938 and 1941)	Typical ulcer pain	June 15, 1945	Excellent symptomatic result, with rapid healing of ulcer	Case restudied, August, 1945; good maintenance of result; no change in gall-bladder motility by x-ray.
8	37800	43	F	Duodenal ulcer; chronic cholecystitis; hypertension.	16	Bleeding (1939, 1942 and 1945)	Epigastric pain	Aug. 14, 1945	Pain relieved; intermittent vomiting for 1 wk. postoperatively; ulcer healed.	Some delay at cardia shown by x-ray; possible cerebrovascular accident, September, 1945.
9	381380	35	M	Duodenal ulcer	3	Perforation (1944)	Epigastric pain	Aug. 15, 1945	Excellent symptomatic result; ulcer healed.	
10	231542	50	M	Stomal ulcer; cholelithiasis.	23	Gastroduodenostomy (1932); bleeding (1934); subtotal gastrectomy (1935); bleeding (1945).	Pain	Aug. 28, 1945	Excellent; ulcer healed.	
11	501746	37	M	Stomal ulcer	18	Subtotal gastrectomy (1944); obstruction and operation (1945).	Severe epigastric pain	Sept. 7, 1945	Very gradual improvement; ulcer healing.	Antral remnant still in place; response slow but definite; complete healing on removal of antral remnant.
12	502947	31	M	Duodenal ulcer	5	None	Pain and vomiting	Sept. 20, 1945	Good result; ulcer healed.	Ulcer previously failed to heal after 2 mo. of intensive therapy

returning for studies. During these return visits, no recurrence has been observed, with one exception, consisting of a tiny duodenal fleck seen approximately eight months after operation, which again disappeared and was not accompanied by any return of symptoms. Following operation, as a general rule, the patients were allowed to eat and drink anything they wished, including alcohol and coffee, since it was believed that the operation would not be put to an adequate test if a patient was carried along on conscientious medical therapy.

One patient had symptoms over a six-month or eight-month period that were referable to increased gastric emptying time. These symptoms consisted of occasional belching and vomiting of food eaten many hours previously. The vomiting never became serious enough to alter the blood electrolyte concentration, which remained normal throughout this period, but the patient lost several pounds in weight. This finally ceased, and the patient has since remained well.

Nine patients had duodenal or jejunal ulcers that produced pain as their outstanding symptom. In 2 of these cases, the pain was so severe that the patient was obliged to ingest some sort of antacid preparation frequently throughout the day and night. The clinical result in most of these patients has been quite striking in that they have had immediate and lasting relief of their symptoms. Whereas they were ready to submit to any type of medication or surgery to rid themselves of the symptoms, which plagued them constantly, they have been relieved postoperatively and have returned to work. A patient with stomal ulcer following subtotal gastric resection, in which remaining antral tissue was present, was only gradually relieved of his symptoms. He later had the antral remnant removed, with complete healing.

In summary, it may be said that in all 12 cases the ulcers have healed or are healing and that all but 1 patient had immediate and sustained symptomatic relief. There have been no surgical complications, such as empyema, persistent pneumothorax and cardiospasm.

X-Ray Changes

The x-ray changes following vagus resection may be described as consisting of prolongation of the initial emptying of barium into the duodenum and marked prolongation of the final emptying time of barium from the stomach. In normal patients, the initial time of barium-emptying into the duodenum is from half a minute to one and a half minutes after taking barium by mouth. This has not been altered by the presence of peptic ulcer unless the patient has frank obstruction. In the patients who have had vagus resection, initial emptying into the duodenum usually requires fifteen to twenty minutes.

The final emptying time of the normal stomach is approximately two to two and a half hours. Following vagus resection, this time may be twelve to twenty-four hours (Fig. 1). It is remarkable that these changes have not produced more symp-

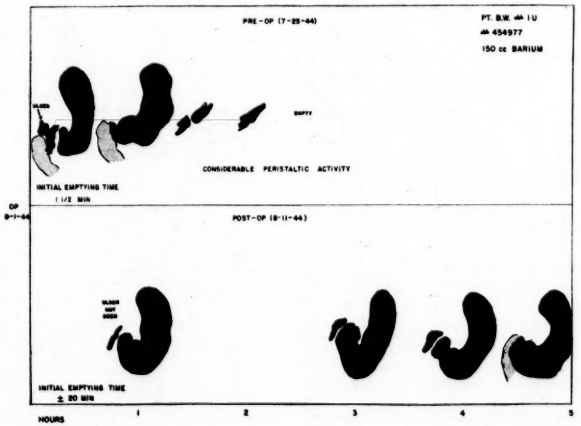

FIGURE 1. *Tracings of Serial Spot Films of Stomach and Duodenum in Case 1.*
These demonstrate the gastric emptying time by x-ray preoperatively and postoperatively. Some peristaltic activity was still visible postoperatively under the fluoroscope, but it had markedly decreased. There was residual barium in the stomach at fourteen hours.

toms in our patients, and if this operation becomes generally applied, this phenomenon may be responsible for some poor clinical results. It is, however, of the greatest importance in selecting patients to avoid those who show complete obstruction due to scarring, both clinically and by x-ray examination. If they are so obstructed, either subtotal gastrectomy or posterior gastroenterostomy concomitant with vagus resection should be carried out.

Another interesting symptomatic result of this change in gastric emptying rate has to do with the completeness with which food is digested. Several

throughout the greater part of the twenty-four-hour period. Some elevation may be observed an hour or two after the taking of food, but in general the patient goes through the day with no free acid. Second, there is a concomitant change in total acid, with reductions varying from 50 to 70 millimols per liter. Third, there is a change in total chloride content that roughly parallels this change in acidity but is not so marked. Fourth, there is a minimal change or no change in the total base concentration. Fifth, there is an increase of from 1 to 3 or more pH units at every hour during the day. We have

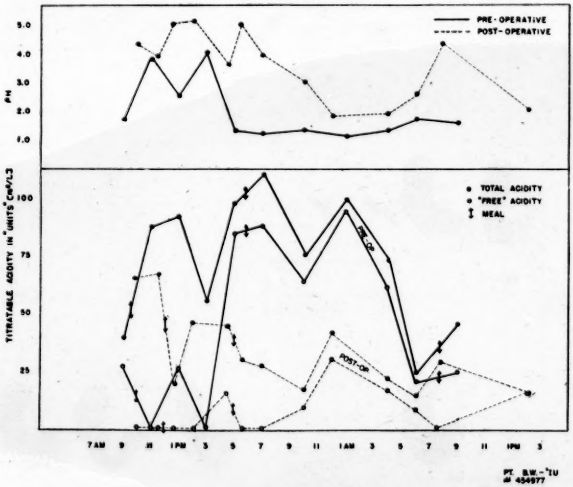

FIGURE 2. *Chart Showing the Reaction and Titratable Acidity in Case 1 Preoperatively and Postoperatively.*

The postoperative tests were carried out approximately ten days after the operation. There was a rise in pH and a fall in titratable acidity following the operation, an alteration that has been maintained in follow-up studies.

of the patients have commented on the fact that, whereas preoperatively certain types of seed food, such as cucumbers and tomatoes, were poorly digested and often recognizable in the feces, postoperatively, regardless of what food is taken, complete digestion is secured and the stools do not contain undigested material.

Secretion

Effects on gastric secretion have been extensively studied and will be reported in detail in a separate paper. At the present time it seems sufficient to state that the immediate effects following vagus resection are as follows. First, there is a change in free acid values from normal or elevated to zero

seen no patients who following vagus resection showed a value below pH 1.5, whereas this is not infrequent in normal persons. In most patients with peptic ulceration the gastric acidity is in the region of pH 1.0, especially between midnight and 5 a.m. Lastly, the change in pepsin content has been inconstant and generally negligible.[41]

The standard procedure has been to leave the Levin tube in the stomach for eighteen to forty-eight hours, letting the patient be up and around the ward and allowing him to eat his usual meals without drugs or other artificial stimulation. This gives a picture of what is normally going on in the patient's stomach as nearly as it can be delineated with the patient in the hospital and with the tube

in place, both of which are admittedly artificial stimuli.

The permanence of these secretory changes cannot as yet be determined. They have been maintained in all the follow-up studies so far carried out.

The typical secretory changes occurring preoperatively and postoperatively are shown in Figures 2 and 3. Similar data have been prepared for the other cases and show essentially the same changes.

The secretory response to drugs has been of secondary interest, since it was considered that the unchanged secretory picture was the most important factor. The reaction to neostigmine has been studied because this drug may act by blocking the interaction between acetylcholine and cholinesterase. If the chief source of acetylcholine in the stomach — the vagus endings — were abolished, it is reasonable to assume that there would be some change in reaction to neostigmine. The studies so far have been disappointing, not for lack of postoperative findings but because the neostigmine secretory response in the unoperated stomach is so variable and so unreliable as to make this test a poor one.

The effects of insulin on gastric secretion have been mentioned by Weinstein et al.[42] as being a test for vagus section. They state that unless this reaction is abolished, the vagus nerves cannot be regarded as having been adequately sectioned. In these patients, studied postoperatively, there has been no insulin response. The preoperative insulin response was usually quite definite.

The response to histamine is unchanged by this operation, which is as it should be. This response is probably a direct effect of the drug on the gastric

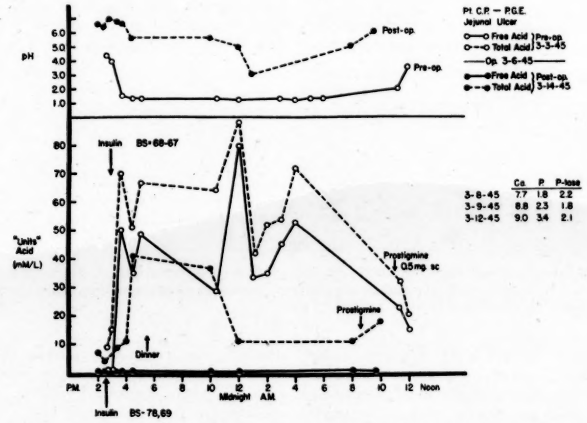

FIGURE 3. *Changes in the Reaction and Titratable Acidity in Case 5 Preoperatively and Postoperatively.*

There was an increase in pH eight days after operation, as compared with the preoperative values. The titratable free acidity disappeared postoperatively, and the total acid was much reduced. A preoperative insulin test gave a marked outpouring of acid gastric contents (the blood-sugar levels are shown in the upper figures). A postoperative insulin test (shown below base line) gave no response, although the blood-sugar levels were in the same range. There was no significant change in reaction to prostigmine. Calcium values showed a fall immediately following operation, with a rise toward normal in the subsequent four days.

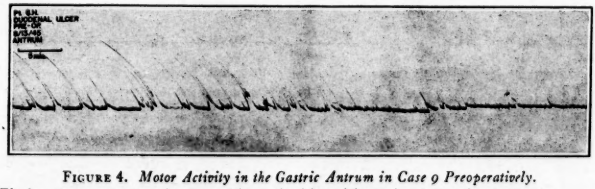

FIGURE 4. *Motor Activity in the Gastric Antrum in Case 9 Preoperatively.*

The large waves correspond to propulsive peristaltic activity and are normal antral waves.

cells and is not mediated in any way, either by nerves or by other hormones, so that there is no reason to expect any change following an operation in which the gastric cells remain intact.

Motility

Studies on gastric motility have been carried out, and examples of preoperative and postoperative tracings are shown in Figures 4, 5, 6, 7, and 8. These tracings have been secured by the use of an apparatus developed by Gorrell[43] and used extensively by Chapman,[44] which permits one to make accurate tracings of gastric waves by means of an electronic alternator and an electric motor that directs the recording apparatus in response to stimuli received from the stomach through a balloon tube. This device lacks many of the faults of other apparatus for gastric kymography in so far as extremely weak gastric contractions make an adequate tracing, and as a technical device it has been most useful. The intragastric position of the tube has been checked fluoroscopically in every case, an essential precaution since fundal activity is normally rather low.

The typical result produced by vagus resection in the early postoperative phase is the complete abolition of large gastric contractions. This is correlated with the change produced in the x-ray films, previously mentioned. There is a lessening of peristaltic activity. This effect is apparently not always long lasting, and in 1 patient waves of normal amplitude but abnormal pattern were observed eight months postoperatively (Fig. 8).

Pain

Changes in pain sensitivity to balloon distention have not been demonstrated in these patients to date. With the balloons in the lower esophagus, stomach, duodenum or jejunum, the threshold at which the patient experiences pain is correlated with the same degree of balloon distention preoperatively and postoperatively. This negative finding concerning sensory changes is of the greatest importance in evaluating the results of this procedure. In the dramatic symptomatic response produced in many of these cases, the patient awakes from the anesthesia stating that he feels that his ulcer has been cured or that he feels so well that he would never have known that he had had an ulcer. Such relief brings to mind the possibility that sectioning the nerves has simply anesthetized the stomach and duodenum so that the pain from continuing ulceration is not felt. The evidence against this conclusion, however, is overwhelming. The rapid healing of the ulcer, as well as the secretory changes, strongly suggests that a more profound change than anesthetization has been produced. Sensory studies demonstrate not only that the area is unanesthetized but that apparently no

FIGURE 5. *Motor Activity in the Gastric Antrum in Case 9 Eleven Days Postoperatively. This is a small portion of a long tracing showing a marked alteration in activity, which consists of the abolition of the large peristaltic waves.*

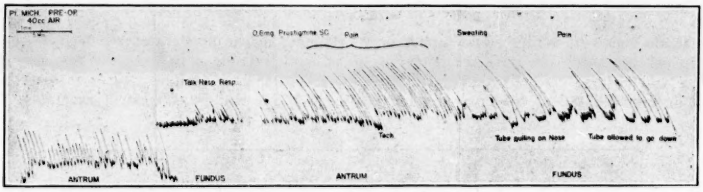

FIGURE 6. *Motor Activity in the Gastric Fundus and Antrum in Case 7 Preoperatively. A motor response to prostigmine is observed, which was correlated with pain. The stomach tended strongly to propel the balloon downward, and there was an unusual amount of motor activity in the fundus.*

sensory change whatsoever has been produced. This leads also to the conclusion that vagus resection somehow alters the fundamental mechanism producing peptic ulceration.

Sensations of fullness, hunger or nausea are present following this procedure, according to the nature of the stimulus. Vomiting may occur if the stomach becomes overdistended, from which one may conclude that the normal afferent end of this reflex arc is also intact. Smithwick[22,45] has shown that many of the afferent pathways from the duodenum, gall bladder and biliary tract course the sympathetic nerves. The lower end of the esophagus, however, is not denervated from the sensory point of view by sympathetic ablation.[46] Nor does removal of the parasympathetic nerves at the level of this operation seem to alter sensation from the lower end of the esophagus. This indicates that this area and possibly the fundus of the stomach have sensory pathways that are not yet adequately described in human beings. A possible explanation is that the submucosal plexus in the esophagus continuously carries stimuli to the upper end of the esophagus before they pass out into the main vagal trunks.

Other side-effects of the operation are relatively few. There appears to be a lowering in the calcium concentration in the blood, followed by a rise to normal, these changes possibly being related to those described by Pfeiffer[47] in dogs following division of the vagus nerves.

We have done Graham tests before and after operation, and to date have found no distinct differences in the degree of emptying of the gall bladder.

Gastroscopy carried out preoperatively and postoperatively in Case 10 showed little alteration save a decrease in reddening about the gastroenterostomy stoma.

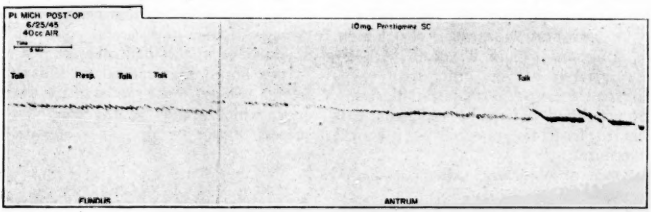

FIGURE 7. *Motor Activity in the Gastric Fundus and Antrum in Case 7 Ten Days Postoperatively. Little motor activity was present, and there was no response to prostigmine.*

SURGICAL TECHNIC

The surgical technic involved in this procedure will not be presented in full detail. A sizable segment of both nerves, running from the region of the lung root to the cardia of the stomach, is removed. We do this with the hope of interrupting fibers leaving the main trunks and entering the esophagus that might possibly become expanded in their function to take over some of that lost by sectioning the main trunks. The diaphragm is cut to permit dissection of the nerves going to the stomach and is resutured between the severed nerve ends. The proximal ends of the cut nerves are encased in one silk cylinder, pointed cephalad and sutured to the pleura, which is closed behind them in a fashion not unlike that illustrated by Dragstedt.[38] Although the immediate physiologic results of both his operation and ours are doubtless the same, we have performed the more extensive

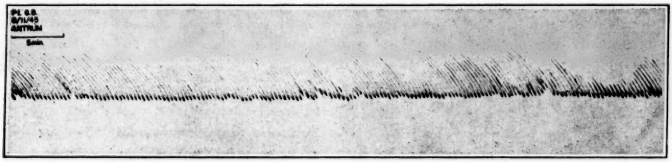

FIGURE 8. *Motor Activity in the Gastric Antrum in Case 3 Seven Months Postoperatively.*
The so-called "automatic" type of motor pattern is quite different from that shown in Figures 4 and 6 for preoperative patients. It was observed in this patient many months after operation and makes a striking contrast to the earlier postoperative tracings, which showed little or no motor activity. This type of tracing may represent the local response of the denerved stomach to the stretch stimulus of a balloon in the antrum, unregulated by higher centers.

operation for the reasons outlined in the introductory section of this paper.

Discussion

The place that this operation will ultimately occupy in the surgical armamentarium is at present not clear. On the basis of our present limited knowledge and experience with the operation, little can be said concerning its limitations. It is clearly not indicated in acute perforations, acute massive hemorrhage or advanced cicatricial obstruction. These three situations should be dealt with by appropriate surgical maneuvers other than vagus resection. Beyond these obvious contraindications, we have not yet found criteria by which patients can be excluded from the possibility of benefit from this procedure.

The occurrence of bleeding in the past is no contraindication to the operation.

Gastric ulceration proximal to the pylorus should be approached with the greatest caution so far as this operation is concerned. The reason for this is that although the diaphragm is open, the region of the ulcer cannot be adequately visualized and palpated, and even if it could be, it is often impossible to differentiate ulcer from cancer. Resection should therefore usually be employed in such cases.

Patients who have had other surgery, such as pyloroplasty, posterior gastrojejunostomy or gastric resection, and who present themselves with renewed ulceration are ideal subjects for this procedure. The previous surgery does not in any way complicate the operation, and it may be carried out with excellent relief of symptoms in cases in which renewed attack on local structures through the abdomen would be technically complicated, with the end result open to question.

The largest group of cases in which this procedure seems to be of value is that of young or middle-aged men with a long history of peptic ulceration, possibly with previous perforations or hemorrhages, unobstructed and not acutely bleeding, who have been refractory to careful medical therapy and who have severe ulcer pain in times of stress,[48] which can be relieved transiently by the usual antacid, milk or food. This type of patient, in our experience, obtains a uniformly good result from this procedure, but the duration of the relief is at present unknown.

Summary and Conclusions

The background and rationale of transdiaphragmatic resection of the vagus nerves for peptic ulcer is discussed.

This operation has been performed on 15 patients, and the clinical results in the first 12 cases are briefly discussed.

The general nature of the physiologic changes as regards secretion, motility, x-ray emptying and afferent conduction follow a fairly consistent pattern and are described.

The operative maneuver employed is a transthoracic transdiaphragmatic resection of both vagus nerves in which a sizable portion of nerve is resected and steps are taken to avoid regeneration.

This procedure appears to be a potent weapon in dealing with peptic ulceration, as judged by clinical results in these early follow-ups.

The final value of this method must await the passage of time and careful study of the patients operated on at this and other clinics.

It is hoped that radical transdiaphragmatic resection will avoid the return of the ulcerating tendency, which stands as the chief obstacle to the success of this or any other operation for peptic ulcer.

References

1. Allen, A. W. Gastric ulcer and cancer. *Surgery* **17**:750-754, 1945.
2. Allen, A. W., and Welch, C. E. Gastric resection for duodenal ulcer: follow-up studies. *Ann. Surg.* **115**:530-543, 1942.
3. Moore, F. D. Unpublished data.
4. Berger, E. H. Distribution of parietal cells in stomach: histotopographic study. *Am. J. Anat.* **54**:87-114, 1934.
5. Connell, F. G. Fundusectomy: new principle in treatment of gastric or duodenal ulcer. *Surg., Gynec. & Obst.* **49**:696-701, 1929.
6. Wangensteen, O. H., Varco, R. L., Hay, L., Walpole, S., and Trach, B. Gastric acidity before and after operative procedures with special reference to rôle of pylorus and antrum: preliminary report of clinical and experimental study. *Ann. Surg.* **112**:626-670, 1940.
7. McKittrick, L. S., Moore, F. D., and Warren, R. Complications and mortality in subtotal gastrectomy for duodenal ulcer: report on 2-stage procedure. *Ann. Surg.* **120**:531-561, 1944.
8. Ogilvie, W. H. Approach to gastric surgery. *Lancet* **2**:295-299, 1938.
9. Edkins, J. S. Chemical mechanisms of gastric secretion. *J. Physiol.* **34**:133-144, 1906.
10. Lim, R. K. S., Hou, H. C., et al. Basal secretion of stomach: influence of feeding bone and other hard objects. *Chinese J. Physiol.* **4**:1-20, 1930.
11. Babkin, B. P. *Secretory Mechanisms of the Digestive Glands.* 900 pp. New York: Paul B. Hoeber, Inc., 1944.
12. Engelfinger, F. J. Late effects of total and subtotal gastrectomy. *New Eng. J. Med.* **231**:321-327, 1944.
13. Lahey, F. H. Inflammatory lesions of stomach and duodenum. *J. A. M. A.* **127**:1030-1037, 1945.
14. Bancroft, F. W. Modification of Devine operation of pyloric exclusion for duodenal ulcer. *Am. J. Surg.* **16**:223-230, 1932.
15. Zollinger, R. Surgical treatment of gastric and duodenal ulcer. *Surgery* **7**:427-452, 1940.
16. Hollander, F., and Mage, S. Statistical method for evaluating results of treatment for peptic ulcer. *Surg., Gynec. & Obst.* **76**:533-546, 1943.
17. Jones, C. M. Alimentary-tract disturbances secondary to emotional or physical trauma. *New Eng. J. Med.* **228**:612-619, 1943.
18. *Idem.* Therapy of peptic ulcer from point of view of internist. *Psychosomatic Med.* (in press).
19. *Idem.* Functional gastro-intestinal disturbances. *M. Clin. North America* **28**:1154-1163, 1944.
20. Cushing, H. Peptic ulcers and interbrain. *Surg., Gynec. & Obst.* **55**: 1-34, 1932.
21. Pavlov, I. P. *The Work of the Digestive Glands.* London: Charles Griffen, 1910. P. 53.
22. Smithwick, R. H., Chapman, W. P., and Jones, C. M. Unpublished data.
23. Baxter, S. G. Rôle of sympathetic nervous system in gastric secretion. *Am. J. Digest. Dis.* **1**:40-42, 1934.
24. Ivy, A. C. Some recent developments in physiology of stomach and pancreas which pertain to management of peptic ulcer. *Bull. New York Acad. Med.* **20**:5-14, 1944.
25. Cobb, S. *Borderlands of Psychiatry.* Harvard University Monographs in Medicine and Public Health. 166 pp. Cambridge: Harvard University Press, 1943.
26. Stahnke, E. Experimentell Untersuchungen zur Frage der neurogenen Entstehung des Ulcus Ventriculi: zugleich ein Beitrag zur pathologischen Physiologie der Mageninnervation. *Arch. f. Klin. Chir.* **132**:1-59, 1924.
27. Hartzell, J. B. Effect of section of vagus nerves on gastric acidity. *Am. J. Physiol.* **91**:161-171, 1929.
28. Vanzant, F. R. Late effects of section of vagus nerves on gastric acidity. *Am. J. Physiol.* **99**:375-378, 1932.
29. Beaver, M. G., and Mann, F. C. Production of peptic ulcer after section of gastric nerve. *Ann. Surg.* **94**:1116-1118, 1931.
30. Mann, F. C., and Williamson, C. S. Experimental production of peptic ulcer. *Ann. Surg.* **77**:409-422, 1923.
31. Latarjet, A. Resection des nerfs de l'estomac. Technique operatior. Resultat cliniques. *Bull. Acad. de med.* **87**:681-691, 1922.
32. Pieri, G., and Tauferna, U. Studi sulla fisiologia dell'innervazione viscerale dell'uomo: effetti della resezione del vago sulla secrezione gastrica. *Riforma med.* **46**:323-326, 1930.
33. Pieri, G. Bilateral subdiaphragmatic resection of vagus nerves. *J. A. M. A.* **98**:1950, 1932 (Abstract).
34. McCrea, E. D. Nerves of stomach and their relation to surgery. *Brit. J. Surg.* **13**:621-648, 1926.

35. Churchill, E. D., and Sweet, R. H. Transthoracic resection of tumors of stomach and esophagus. *Ann. Surg.* **115**:897-920 and **116**:566-573, 1942.
36. Smithwick, R. H. Surgical treatment of hypertension: effect of radical (lumbodorsal) splanchnicectomy on hypertensive state of 156 patients followed one to five years. *Arch. Surg.* **49**:180-193, 1944.
37. Dragstedt, L. R., and Owens, F. M., Jr. Supradiaphragmatic section of vagus nerves in treatment of duodenal ulcer. *Proc. Soc. Exper. Biol. & Med.* **53**:152-154, 1943.
38. Dragstedt, L. R., and Schafer, P. W. Removal of vagus innervation of stomach in gastro-duodenal ulcer. *Surgery* **17**:742-749, 1945.
39. Dragstedt, L. R., Palmer, W. L., Schafer, P. W., and Hodges, P. C. Supradiaphragmatic section of vagus nerves in treatment of duodenal and gastric ulcers. *Gastroenterology* **3**:450-462, 1944.
40. Tuttle, L. L. D. Personal communication.
41. Anson, M. L., and Mirsky, A. E. Estimation of pepsin with hemoglobin. *J. Gen. Physiol.* **16**:59-63, 1932.
42. Weinstein, V. A., Colp, R., Hollander, F., and Jemerin, E. E. Vagotomy in therapy of peptic ulcer. *Surg., Gynec. & Obst.* **79**:297-305, 1944.
43. Gorrell, J. E. Unpublished data.
44. Chapman, W. P. Unpublished data.
45. Bentley, F. H., and Smithwick, R. H. Visceral pain produced by balloon distention of jejunum. *Lancet* **2**:389-391, 1940.
46. Jones, C. M., and Chapman, W. P. Studies on mechanism of pain of angina pectoris with particular relation to hiatus hernia. *Tr. A. Am. Physicians* **57**:139-151, 1942.
47. Pfeiffer, C., Dreisbach, R. Glass, H. G., and Roby, C. C. Calcium and potassium changes in blood and urine of dog during excitement and after bilateral vagus section. *Am. J. Physiol.* **129**:756-765, 1940.
48. Wolf, S., and Wolff, H. G. *Human Gastric Function: An experimental study of a man and his stomach.* 195 pp. New York and London: Oxford University Press, 1943.

AN INTERVIEW METHOD FOR OBTAINING PERSONAL HISTORIES*

CLARK W. HEATH, M.D.†

BOSTON

IN MEDICAL practice, knowledge of the patient's personality and social history is often essential for diagnosis and treatment. There is great need both in practice and teaching for well organized methods of obtaining this information. The interview is a powerful instrument if properly employed, yet most students and physicians have received little training in the art of interviewing.

In recent years I have had personal experience with a short-interview method for the selection of officer candidates. This method, prepared by Woods[1] and designed to reveal pertinent facts regarding the man's capacities, interests, personality traits, weaknesses and strengths, does not employ an elaborate technical terminology and does not require psychiatric training. After a brief period of practice most interviewers who had an earnest interest in the variations of human personality could reach pertinent conclusions in the majority of young men examined. It seemed obvious that such a formalized, brief interview could be profitably employed as a means of obtaining the personal histories of patients. I have used some modification of it for most of my private and hospital cases during the last several years, and the experience thus gained has convinced me that an interview of this sort should be a part of the medical history.

The use of the interview embraces not only a certain technic but also a definite point of view. To illustrate this, 3 cases of borderline rheumatic fever in young adults will be cited. The histories and physical examinations were all much alike. There had been fatigue, malaise, probably some fever, and migrating joint pains. The fourth-year medical students, acting as clinical clerks, were quite properly concerned with the sizes of the hearts, systolic murmurs, temperature charts, white-cell counts, sedimentation rates and electrocardiograms. In each case, brief questioning, following the plan of the interview, revealed within a few minutes some of the crucial facts needed for adequate understanding and handling of the illness.

The first patient was a high-school girl of sixteen years whose chief enthusiasm was for roller skating, in which she was possibly headed for a professional career. All her extra time and money were devoted to this absorbing interest, and she allowed herself only five or six hours of sleep. The second patient was a high-school boy of seventeen, whose history was much the same except that he was exclusively concerned with jive dancing. The third case revealed a more complicated personal history. The patient was a robust girl of seventeen who had been obliged to leave school two years previously because of the death of her parents and consequent financial restrictions. She lived with her grandparents, who assumed the role of Fagin. A brother was frequently confined in a mental hospital. The girl worked in a defense factory in the daytime and as a restaurant waitress in the evening, traveling for an hour by trolley between her places of employment. Her chief desire was apparently to receive a nurse's training, but this plan had to be indefinitely postponed because of the lack of a high-school education and the necessity of supporting her grandparents.

Obviously, the most important element in each of these cases was common to all — namely, abuse of the human machine, late hours and lack of sleep. Each patient required a somewhat different approach to correct the poor hygiene, necessitating a personal knowledge of the patient and mutual understanding between him or her and the physician. The medical students seemed to have missed this point; their training had not covered adequately the palpable relation of the social and personal history to the etiology of disease.

The term "personal history" covers a wide area. It is not sufficient to understand merely the tenets of psychosomatic medicine, as is illustrated by the

*From the Grant Study, Department of Hygiene, Harvard University, the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School.

†Physician to the Grant Study, Department of Hygiene, Harvard University; assistant physician, Thorndike Memorial Laboratory, and assistant in medicine, Boston City Hospital; associate in medicine, Harvard Medical School.

many authenticated cases of the relation between mind and physiologic function. Before these factors can be adequately evaluated, there must be an understanding of the patient as a person and of his environment and systematized knowledge concerning not only the relation between mind and body but also that concerning personality and its role in the environment. The present report has to do with the latter and is necessarily only an introductory statement. The term "personal history" embraces not only the personality but the social history, as incorporated in medical-history forms, as well as some part at least of the traditional items in the family history, marital history, occupational history and habits.

General Aspects of the Interview

The task in obtaining the personal history is not only to acquire a working knowledge of the personality of the patient, his activities and interests and his environment but also to establish a satisfactory physician-patient relation so that immediate therapy and future handling of the case will be facilitated. Much has been written about this sort of approach, which is the very core of the practice of medicine. Monks[2] in a pertinent article written in 1939 drew on the experience of Roethlisberger and his co-workers[3] for practical suggestions in the technic of interviewing. The latter have pointed out that the interviewer is in the role of a listener, who "should listen not only to what a person wants to say but also for what he does not want to say or cannot say without help." A book by Bingham and Moore,[4] entitled *How to Interview* gives excellent material for the technic of various kinds of interviewing and describes their dangers and pitfalls.

The interview is appropriately a part of the medical history. Brief questions are asked, giving the patient the opportunity to expand his replies. The approach is clinical, but it differs from that of the rest of the clinical history in an important respect. Whereas the usual clinical approach is to explore the range of possible diagnoses, the purpose here is to reveal positive traits and capacities and to discover what the patient does and likes to do and the nature of his background and adjustment, his way of life and his occupational and cultural environment. Some reorientation is necessary in the physician's thinking in acquiring this kind of information, for his training in history-taking, particularly if he has just completed his medical-school and hospital training, has been largely in the direction of identification of disease. The personal history serves a double function, since disabilities and defects inevitably come to light in the course of a well handled interview, and their nature can be pursued by appropriate questioning. Nevertheless, the main intent of the personal history should be to learn "the whole nature of the man within the patient."[5]

The physician should have either in mind or close at hand on paper a suitable outline of the kind of information he wishes to obtain. This varies somewhat, depending on the patient's age, sex, intelligence and cultural background. Competent interviewing is an art that is developed by experience. It is materially aided by a pertinent and thorough plan of the field to be covered. A suggested outline of topics and appropriate questions is given below.

It is a mistake to follow rigidly any definite order of questioning. Certain questions strike home in certain patients who, if they believe that they have a sympathetic listener, describe conditions of their life that are extremely revealing. In such cases, the order of the interview should be dropped for the time, the patient being allowed to pursue the point in question until the examiner is satisfied that a satisfactory understanding of the situation has been reached. The physician should be constantly alert to such possibilities. Here, as elsewhere, the advantage of the clinical method lies in its flexibility and its adaptability for different persons and changing circumstances. It has been observed that one must listen not only to what the patient says but for what he does not say. Often it is in the manner in which a question is received and answered that is of importance rather than the actual content of the answer. To adopt the expression of Woods,[1] "The interviewer must depend upon the astute use of all his senses rather than upon systematized appraisal of question and answer." Diagnosis in this field has not advanced nearly so far as has the recognition of classified somatic disease. Nevertheless, even in the latter field, reaching a diagnosis is often somewhat more of an art based on broad experience than it is a technic.

Outline of Interview

The following list of suggested topical headings is necessarily only tentative and is not to be rigidly followed. Limitations of time and the particular circumstances of the patient alter the pattern. The questions listed under the various topics are merely introductory ones, and should be altered to suit the circumstances. They comprise those that seem likeliest to elicit revealing answers. Answers that are suggestive should be pursued by questions of a like nature. For the purpose of illustration, it will be assumed that the patient is an adult man who has had a college education, is married and has held a job for a number of years. Questions inappropriate for the person who has not attended college, for the single person or for a younger man will naturally be eliminated, and others may be substituted.

I. *Appearance and Expression* (At the start a mental note is made of such items as general appearance, body build, dress and temperature and moistness of the hands, and throughout the interview expressive movements and the manner of speech are observed.)

II. *Education* (The educational history offers an easy approach to the interview. It naturally blends with sub-

sequent topics such as athletics, activities and interests and the choice of a career. Particular interests and abilities are easily elicited through the patient's choice of subjects and his liking for or dislike of particular courses.)

A. *Scholastic*
- How old were you when you left school?
- How far did you get in school?
- What high school (college) did you go to?
- Did you like it there?
- What subjects did you like best?
- What did you major in?
- Why did you choose that field?
- Did you do all right in mathematics? (English, etc.)

B. *Extracurricular Activities* (The choice of a field of specialization in college may lead naturally to a choice of lifework. If so, the following questions may may be deferred until later.)
- What did you do outside of courses in school (college)?
- Did you receive a scholarship?
- Did you have to earn some of your way?
- Did you go out for a school paper? Glee Club? Special organization?
- Did you hold any offices?

III. *Activities and Interests* (The examiner should strive to get an estimate of the patient's muscular co-ordination and ability to withstand strenuous exercise.)

A. *Athletic Activities*
- Did you spend much time in sports?
- What sports do (did) you take part in?
- What was your best sport?
- Were you on a varsity team?

B. *Spare Time*
- What do you do in your spare time?

C. *Outdoor Life*
- Do you like outdoor life?
- Do you swim? Fish? Hunt? Sail? Ski?
- What experience have you had in hiking? Camping?

D. *Summer Activities*
- What do you like to do summers?
- How do you like to spend vacations?
- What did you do last summer?

E. *Artistic and Special Abilities*
- Have you any special hobbies?
- Do you play a musical instrument?
- How much training have you had in this?
- Do you sketch or draw?
- Do you like to read?
- What books or magazines do you like to read?
- Are you handy with tools?
- Do you drive a car?
- Can you repair it?

F. *Social Activities*
- Do you have many close friends?
- Do you find it easy meeting new people?
- Do you prefer to do things with people?
- Do you and your wife dance?
- Do you play cards?

IV. *Family Life*

A. *Boyhood Home*
- What was your father's occupation?
- What was your father like?
- Did your mother have an occupation outside of her home?
- Were you close to your parents?
- What about your brothers and sisters?
- What are they doing now?

B. *Married Life*
- How old is your wife?
- Where was her home?
- Does she enjoy housework?
- Does she have interests outside of the home?
- How long did she go to school?
- How many children have you?
- What are their ages? Sexes?
- Do they ever get on your nerves?
- How do you and your wife spend the evenings?
- Are you and your wife of the same religion?
- How do you get along together sexually?

V. *Religion*
- What is your religion?
- Were you brought up in this religion?
- Do you belong to a church?
- How important is your religion for you?
- Do you enjoy ritual?
- Do you send your children to Sunday school?

VI. *Occupation* (The manner of choosing a career and the motivations that impel a man in his work are sometimes the richest source of knowledge concerning him. The opportunity also may be taken here to determine the actual duties at work, so as to discover possible occupational hazards and strains bearing on the illness.)
- What is the nature of your work?
- How did you get into this field of work?
- Does it satisfy you?
- Do you get along well with the people there?
- Where do you think your abilities lie?
- Do you seriously consider some other field (teaching law, business etc.)?
- What are your plans for the future?

VII. *General Habits*
- What time do you usually get to bed? Get up in the morning?
- Do you smoke? Drink? Take any medicines?
- Are you naturally orderly with your things?
- What do you usually do when you get home at night?

VIII. *Mood* (Minor mood swings, without necessarily being pathologic, are frequent, and are sometimes responsible for unexplained variations in efficiency. Moreover, the mood in some persons seems to be set at different levels — some being naturally warm and optimistic and others depressed and pessimistic.)
- Do your spirits run on an even keel?
- Do you run into periods of a week or so in which you are not so efficient, or do not feel so well?
- Do you have any trouble in controlling your temper?

IX. *Stability of Autonomic Functions*
- Does it affect you to have to speak in public?
- In college were you affected by examinations? Games?
- Are there any particular stresses that cause symptoms?
- Does anything interfere with your sleeping? Eating?
- Does anything ever produce diarrhea? Frequency of urination?

X. *Over-All Judgment of Personality and Recording of Personal History*

The judgment of the patient's personality* is made from the interpretation of the answers to the above and similar questions and from the appearance, manner and expression. The personal history may be recorded in simple language, since it bears on the complaints and the medical diagnosis in question. A good deal could be said for placing it as a preface or foreword to the formal medical history.

*No attempt is made to suggest a formal personality classification. For the purposes at hand it seems best to describe patients in words of everyday language such as "dependable," "reliable," "likable," "mature," "well mannered," "straightforward," "cheerful" or their reverse: "an energetic, hard-headed businessman," "a neat, precise, rather sensitive individual" and so forth. Some attempt should be made to record what, in the opinion of the doctor, is the strength of the material the patient is made of: that is, Is he basically sound, invulnerable and well integrated? Are his problems the result of circumstances or relatively self-conditioned? Description of the person naturally seems to divide itself into constitutional and basic traits; more environmentally conditioned or temporal traits, such as education, career choice and manner of life; and environment, including family, friends and physical conditions. These factors may be recognized to form a system, each playing a role and impinging on the nature of the illness and the therapeutic indications. A discussion of personality classifications will be found elsewhere.[6,7]

The simple factual material may be recorded as usual in the traditional medical-history outline, under headings such as "Family History," "Marital History," "Social History," "Occupation," and "Habits." A chronological handling of the personal history is often of value, for it may illustrate the sequence of events or repetitions of them that bear on the present illness. If the statement is sufficiently descriptive, it will serve as a personality judgment itself and will be of some prognostic significance.

In respect to women patients, suitable alterations of the questions listed above will suggest themselves. The lifework is usually of lesser importance. Family life, social life and interests, and abilities in the household arts are among the more profitable topics to pursue.

A Typical Case

The following is an abbreviated account of an interview with a patient suffering from a bleeding peptic ulcer, recorded verbatim. It will be recognized that liberties have been taken with the above outline, for brevity's sake only the most pertinent facts being included. Taking notes is not an ideal method, and it is often difficult to recapture the feeling of the interview through the written record. The interview illustrates, however, the simple, direct method of questioning following a plan. The patient was quite willing to discuss at least the superficial activities of his daily life and some of his accomplishments and aspirations.

L. H., a 39-year-old, married schoolteacher, was admitted to the Medical Ward on September 8, 1944. Symptoms of peptic ulcer had been noted since he was 20 years of age. At 22 years, he was operated on for so-called "perforated duodenal ulcer." At 29 years, there was an episode of weakness and black stools. At 33 years, there was a severer attack of bleeding, with hematemesis. Bleeding occurred a third time at 37 years. During the 2 months previous to admission the patient had eaten irregularly, and for the last 5 days he had felt weak and tired. Three days previously, he began to pass tarry stools. A sister had peptic ulcer, which was operated on, apparently successfully, by partial gastrectomy. The patient desired this operation for himself, hoping to return to his customary activities.

Physical examination revealed a tall, heavily built man, pale but in no discomfort. Examination was otherwise negative. The red-cell count was 3,050,000, the hemoglobin 56 per cent and later 45 per cent, and the hematocrit 26 per cent. A blood smear was negative except for hypochromic red cells. The urine was normal. The nonprotein nitrogen was 45 mg. per 100 cc. and total protein 5.5 gm. A blood Hinton test was negative. Guaiac tests of the stools were strongly positive.

The interview was as follows:

Q. How much schooling have you had?

A. I had my public-school training at ——— High School and then worked for 4 years. There is where I made my first mistake, but it turned out all right. After working for 2½ years I started with evening courses at college. After 1½ years of that I dropped the day work and went to college as a regular day student.

Q. How old were you when you finished high school?

A. Sixteen when I finished high school, 17 shortly afterward.

Q. When did you finish at college?

A. January, 1927.

Q. Did you have to earn your way through college?

A. Just my board. My father died when I was an infant. My mother kept the family alive. She's still living. The decision which I made to return to college was influenced by the decision of the family.

Q. Did you engage in extracurricular activities while in college?

A. Yes, I was elected two years running to fraternities, but I did not have much time.

Q. What about sports?

A. I liked them, but never participated. Never seemed to have time, except for sand-lot activities. I was really very busy all the time due to family circumstances.

Q. Did you get good marks in school?

A. In high school I "slowed off" as I was working after school and had no thought of going on to college. Did fair work in high school.

Q. What about camping and outdoor activities?

A. None, except last summer I had a cottage at ———, where there were ample facilities for such things, and I thought my wife and I could have a lot of fun out there. I expect to buy a sailboat or motorboat.

Q. Do you like that sort of activity?

A. Yes, and the youngsters would get a kick out of it, too.

Q. Are you mechanically inclined?

A. No, I'm not mechanically adept.

Q. What about musical activities?

A. I started on the violin, enjoyed music, but I haven't had the time to go into it too much. I've done some tax work for several musicians in an orchestra and thought I should look into whatever it was that made them so interested.

Q. What were your plans after high school?

A. I went to work at the American Telephone and Telegraph Company when I left high school.

Q. You were thinking of something in business?

A. Yes, I was there for at least three years. Then I resigned from there to go with Procter and Gamble. I was disappointed there and would have been far better to remain with the telephone company.

Q. Any degrees from college?

A. B.S. and M.A. degrees from college. I did much better there than in high school.

Q. When did you start teaching?

A. I started to teach there. Professor ———, head of the ——— Department, started me teaching. He was more or less of an inspiration to me and brought me into the ——— Department as his own corrector, and my last year there I was an assistant instructor, and then following that they sent me to the University of Puerto Rico to teach accounting.

Q. Did you go to Puerto Rico?

A. Yes, I taught one academic year, about 9 months, teaching bookkeeping and accounting there, then I came back here to teach.

Q. Do you think your abilities lie there?

A. I do seem to feel that in general I have been able to get along very well with people and don't have very many enemies that I can think of. One examiner in the Boston schools said I was a born salesman. I have perhaps brought that up a little bit by my side activities in real estate.

Q. What were these side activities?

A. I set up desk space over in ———, a real estate office. Because of my teaching course I would not be there in the daytime, but I managed more or less to work into the real estate activity.

Q. Did you like it?

A. I don't know whether I would like it as a full-time venture. The head of it spoke to my wife and said I learned more about it in a year than most people do in fifteen or twenty years. Perhaps that's because I was interested in it as a side venture.

Q. Have you been successful in selling in that sort of field?

A. I have. For example, I just went in there more or less to maintain my desk space that summer, and before I officially closed my season, I sold three or four houses. The next year I doubled my sales, but this year I didn't do so much on account of my illness.

Q. What is your family income?

A. Good, and we have found use for it. I bought a single-family house five years ago. Had a setback on it a couple of years ago and I had to mortgage it, but since then things have gone easier. Still paying on the mortgage.

Q. What is your actual income?

A. Basic income from school is $4000 with the emergency allotment. It would be about $3880.

Q. Do you have a car?

A. Yes, I own a car and drive it.

Q. Do you feel you had to work this summer?

A. I felt I wanted to after buying this cottage — a duplex. The income from the one half will more than take care of the other once I get by this primary arrangement.

Q. But you could have gotten by without working?

A. Yes.

Q. What do you do with your spare time?

A. We lead a rather quiet life. We have five children, the last was born just last July. Haven't had too much occasion to get out and do things. We get along rather nicely, but we don't have activities programmed out. We have many friends, and although we haven't been going many places because of my wife's condition, we are not antisocial, and when time permits, we visit.

Q. Do you and your wife play cards?

A. We play when we have to, but we don't have time.

Q. Do you read much?

A. Not much. [Named two current magazines.] Nothing much. Of course, I read a good deal in my line of work. I study everything for accounting and teaching, but I like fiction.

Q. Listen to the radio?

A. Yes, but not too much.

Q. Ever go dancing with your wife?

A. Yes, on occasion, but there are few lately. I'm an emotional cuss, I guess. I wouldn't be happy if I didn't push myself. My wife recognizes this, and tries to restrain me only to a certain extent.

Q. Do the children get on your nerves?

A. Yes, very much at times. But you love them just the same. We really get along very well. They are sore at me right now for not coming home. I'll have to fix that up.

Q. What is your religion?

A. Catholic.

Q. About how strong is the influence?

A. Strong influence, devoted to the church and go regularly. Follow the religion.

Q. And the children?

A. We raise them accordingly.

Q. Are the children doing well in school?

A. Very bright, the oldest is just past 5, started last year in kindergarten and is in the first grade this year. We were told that he was one of the best down there. The girl following him is in kindergarten now. We had our fifth youngster in July.

Q. Has there been anything in college or school such as examinations which got you upset?

A. Maybe in the beginning, but not so much later. I try to divorce the idea of confidence from conceit. I feel I have something that I should not be afraid to approach anybody on. There were some times when I got gas and used to shiver.

Q. What symptoms did you notice when you were young?

A. Sour stomach and gnawing at night.

Q. Any effect on the bowels?

A. No.

Q. Did you think it affected passing water?

A. The frequency of the passing of water increased.

Q. Did examinations bother you?

A. No, I would get keyed up, but no more than the average person. Might find that perhaps I was not ready for it, but normally I took it as it came along except for the usual emotional stirring up that everybody gets.

Q. When you are nervous, do you smoke more?

A. Yes, this is one of my big weaknesses. Don't care much for cigars, especially what they are handing out these days. [He smokes six or seven cigars a day.]

Q. What about eating?

A. I eat fairly fast.

Q. Now, you sleep well, do you?

A. Yes, prior to this little disturbance now. Within the last 2 months I have been waking up nights. I have had the vision of this thing coming on. Guess it's because I'm a teacher I can understand my situation. I figured on this particular situation. With the type of operation I had, I knew it was not one that would be a permanent one with me; particularly since my sister, who had a complete stoppage 2 years ago, had the more recent type of operation in which they removed two thirds of her stomach. I thought it would come to me.

The interviewer in this case spoke less than one fifth of the time. The questions kept clear of strictly medical symptomatology and were directed toward what the patient did, could do and liked to do, how he conducted his life, what his interests were, and to some extent the influence of his way of life on his bodily functions. The interviewer was not under the necessity of making a psychiatric diagnosis. An academic classification of the personality would have been of accessory interest. The problem was the simple one of determining what factors in the patient's life had to do with his illness, the better to advise him and to arrange conditions to help him to live with health and comfort.

Advance in knowledge of the psychosomatic field may clarify such an approach, but the problem must always remain that of getting to know the patient and his environment in order to treat him more effectively. There is need for adequate classification in this whole area so that the usual social and personal factors bearing on particular illnesses may be more easily recognized. The particular point considered here, however, is the technic of interviewing, so that it is preferable to describe the patient in simple, nontechnical language. In the case just cited the personal history might be recorded somewhat as follows:

> This is a tall, rather heavily built, dark-complexioned man who is very co-operative and talks rapidly. He shows little anxiety. He is a college teacher of accounting and the father of five children. On the side he does real estate work. His religion is Catholic, but he does not seem to be deeply devout. In fact he has no great depth of thought. He is intelligent, pleasant, energetic but without many resources within himself. He is happiest when he is on the go. He says that he leads a quiet life, yet his fifth child was born recently, and his real estate ventures outside of an active career of teaching give him no leisure. Perhaps his restlessness is related to his poverty in his youth and the necessity to seek financial security, which seems to be a strong motivating force in his life. He has many strong basic qualities, such as reliability, dependability, persistence and conscientiousness. He is rather simple, accepting life as it comes, and yet is not unaware that his periodic gastrointestinal illnesses are in some way linked with his continuous, restless activity. One has the not unfamiliar impression of a man of affairs restlessly pursuing his career at fast tempo — hardly an ideal way of life for the patient with peptic ulcer and one that quite likely can be of etiologic significance.

The patient was convinced, before the discussion took place, that he should receive partial gastrectomy particularly since a sister was apparently treated successfully in this manner. He believed that he could thus continue symptom-free and

pursue his accustomed mode of life. One wonders, however, what would be the ultimate effects of such a strenuous life apart from the success of the gastrectomy. Up to nine months postoperatively this patient was free of gastrointestinal symptoms, and he had managed to free himself of many of his outside activities.

* * *

The concept of the physician as friend and adviser of the patient goes back to ancient times. The point of view has been expressed well by modern writers.[8,9] There is nothing new claimed for the material presented here, including the interview method itself. Many physicians with experience in general practice recognize the importance of a personal knowledge of the patient, and they have developed their own technics for managing the patient in some manner analogous to that described. It is therefore surprising that the study of personality and environment forms such a small part of the teaching of medicine. It is as though this teaching were planned to train students for only half their probable duties as physicians — the more technological duties. The physician cannot confine himself to his technological last without harming many patients. Looking at the matter from a broader point of view, one gains the impression that the concentration of medical curriculums on the more specialized branches is symptomatic of what has been occurring in the world outside of medicine. Mayo[10] writes:

> He is an inveterate optimist who is not sobered by a comparison of our own time with the high expectations of a century ago. . . . In no area of activity have nineteenth-century expectations been disappointed. . . . But privation and strife have not vanished from the earth. . . . *While material efficiency has been increasing for two hundred years, the human capacity for working together has in the same period continually diminished.*

Perhaps the capacity for working together has not changed so much, but the conditions that affect it have altered greatly. The human capacity of physician and patient for working together has been affected by the tremendous growth of specialized knowledge in the medical sciences. There are few physicians who will deny this, yet disproportionately little interest is being paid to this essential aspect of medicine. Little enough is known in this area, at least compared to the body of established fact in physiology, pathology, bacteriology and the like. Medicine could benefit in this direction by closer contact with some of the other disciplines concerned with the welfare of people, such as physical and cultural anthropology,[11] clinical psychology, education and the social sciences.

A step toward the desired goal would be to introduce as a required part of history-taking an adequate survey of the personal facts about each patient. This would not only be of educative value to the student but would also inevitably direct closer attention to the gaps in one's knowledge of people. Through interested teachers a body of data could be accumulated for investigative purposes that would allow medicine to contribute a greater share to the knowledge of personality and environment and their relation to the total social scene.[12]

This approach is not without therapeutic value. All patients naturally have a primary interest in themselves and their affairs, and most of them are ready to talk if the circumstances seem appropriate. They often have no one with whom they can discuss their problems. Unfortunately, many believe that most physicians are interested only in such factors as physical examination and physiologic mechanisms and tests. Many patients show some insight into the personal or environmental side of their illnesses, which may be the seed for better self-understanding. It is well known that the latter may come not so much by direct advice from outside as by a kind of self-education from within. Traditional medical history-taking searches for what is wrong. A better balance and a more agreeable approach for the patient are brought about by the addition of the personal history, which emphasizes not so much what is wrong as what are the positive qualities. Medical case histories if taken at their face value paint dismal pictures. The pessimism that they depict is not thereby closer to the truth.

The personal interview helps to decide the occasional question as to whether the matter might not be better handled by a psychiatrist. But most patients do not need a psychiatrist, advantageous as this might be. The friendly counselor, which the physician should be, is quite as competent as the psychiatrist to handle the large proportion of problems presented by private patients, and he is sometimes more so. Many psychiatrists freely admit this. Moreover, there are not enough psychiatrists to care for the large numbers of patients who have symptoms not referable to organic disease. The essential point is to know when the psychotherapeutic problem can be better and more safely handled by the specialist.

There have been certain objections to proposals for spending time and effort in exploring the personal history of the patient. Many physicians fear to encroach on areas of an intimate nature, but most patients readily understand what the physician is driving at in the interview. Involved questions may arouse a fear that the physician has mental disease in mind, but this fear is dissipated by simple questions about school, choice of work, family, friends or some point the patient himself has raised. On the other hand, if mental disease is present, the problem must inevitably be gone into.

The question of time-saving is always an important one. In the majority of cases there is actually a large saving of both the physician's and the patient's time. Useless referrals and unnecessary tests and appointments may be avoided when the

problem more quickly resolves itself into one of adjustments or of personal hygiene. Garrulous and querulous patients are of course encountered. In such cases time and patience are most needed, but one may be helped by dropping a subject and going on to one of equal interest to the patient. Patients vary in the orderliness of their answers, yet they nearly always care for the physician's time, particularly if they recognize his genuine efforts to try to help. Most patients are honest and describe symptoms, worries and fears that are real to them. It has perhaps been overemphasized by psychiatrists that illness is sometimes a means of avoiding unpleasant situations, but it is rare to find definite proof of this mechanism. Perhaps, like hysterical episodes, it has become less frequent than formerly. Today the social and personal concomitants of disease seem to come under the heading of satisfactions and dissatisfactions — in other words, adjustments. Successful interviewing requires a spirit of trust in the patient. At the same time, if the physician will take the time to delve into the positive qualities of good, he will find a most helpful adjunct to his success in the practice of medicine.

Summary

A method of short interviewing for obtaining personal histories is outlined. It consists of short, pertinent questions, covering the positive qualities, activities and environmental relations, the patient being given an opportunity to talk freely. Examples of questions and a sample interview are given.

It is believed that an adequate personal history should be a part of formal medical history-taking. Students should be thus instructed.

The lack of adequate attention paid by medical teachers and practicing physicians to the more general personal and environmental facts of patients' lives is related to the one-sided development of technical knowledge and specialization, symptomatic of the times.

References

1. Woods, W. L., et al. *Selection of Officer Candidates*. 50 pp. Cambridge, Massachusetts: Harvard University Press, 1943.
2. Monks, J. P. Human and social factors in caring for patients. *M. Clin. North America* **23**:1401-1417, 1939.
3. Roethlisberger, F. J., and Dickson, W. J. *Management and the Worker*. 639 pp. Cambridge, Massachusetts: Harvard University Press, 1939.
4. Bingham, W. V., and Moore, B. V. *How to Interview*. 324 pp. New York: Harper & Brothers, 1934.
5. Draper, G., Dupertuis, C. W., and Caughey, J. L., Jr. *Human Constitution in Clinical Medicine*. 273 pp. New York: Paul B. Hoeber, Inc., 1944.
6. Heath, C. W., et al. *What People Are*. 157 pp. Cambridge, Massachusetts: Harvard University Press, 1945.
7. Wells, F. L., and Woods, W. L. Unpublished data.
8. Richardson, H. B. *Patients Have Families*. 408 pp. New York: Commonwealth Fund, 1945.
9. Binger, C. *The Doctor's Job*. 243 pp. New York: W. W. Norton & Company, Inc., 1945.
10. Mayo, E. Foreword in Roethlisberger, F. J. *Management and Morale*. 217 pp. Cambridge, Massachusetts: Harvard University Press, 1941.
11. Saslow, G., and Chapple, E. D. New life history form, with instructions for its use. *Applied Anthropology* **4**:1-19, 1945.
12. Minot, G. R. Investigation and teaching in field of social component of medicine. *Bull. Am. A. Med. Social Workers* **10**:9-18, 1937.

CLINICAL NOTE

ATROPINE POISONING

Report of a Case, with Recovery after the Ingestion of One Gram

Captain Eben Alexander, Jr., M.C., A.U.S., Major Donald P. Morris, M.C., A.U.S., and Ralph L. Eslick, P.A. Surg. (R) U.S.P.H.S.

THE effects of atropine when given in therapeutic doses are dramatic. When it is given in doses that may cause poisoning, the results are sometimes extremely serious or even fatal. The exact incidence of such poisoning is not known. Deaths from this cause constituted an extremely small percentage of those from poisoning in Massachusetts from 1928 to 1937 — considerably less than 1 per cent.[1] There are several reports of cases of poisoning and of recovery with doses of atropine varying from 0.4 to 100 mg.[3–7] In each of these cases the reaction followed a distinct pattern, the differences between the cases being one of degree rather than of variability of reaction. The largest dose of atropine given with subsequent recovery is apparently that reported by Comroe,[2] whose patient received 0.5 gm. by mouth.

In several of the cases mental disturbances were evident.[3–5, 7] These consisted of transient confusion and visual hallucinations. The patient in the present case, on the other hand, showed confusion and paranoid delusions, without visual hallucinations. His behavior was also much more violent than that of the others. This difference may be related to the large dose.

In view of the fact that this patient received twice the maximum dose previously reported, and in view of the differences in the psychotic reaction, it is believed that a summary of the clinical course will be of value and interest.

Case Report

A 23-year-old man of Polish extraction complained, on October 22, 1944, of severe abdominal pain, which necessitated calling the medical officer. The officer had seen him 6 months previously when he had a similar attack of abdominal pain. At that time he was sent to a hospital, where he recovered completely without benefit of operation or special x-ray examination. The appendix had been previously removed. He returned to duty and performed his duty satisfactorily until the reoccurrence of the abdominal pain.

At examination the abdomen was held somewhat rigidly, but there were no masses and there was no localized tenderness or spasm. The medical officer administered 16 mg. of morphine sulfate subcutaneously and instructed his assistant, an enlisted man, to give 0.4 mg. (1/150 gr.) of atropine sulfate but the latter through error gave 1.0 gm. (15 gr.) of atropine sulfate by mouth. This was contained in a small ampul (Merck — Atropine Sulfate, *U.S.P.* Powder, 40253). There was no doubt that the patient consumed the entire dose, and he was not seen to vomit at any time after its ingestion. The size of the dose was well attested to by the medical officer in charge, who later brought to the hospital an ampul of atropine sulfate exactly similar to the one that had been given to the patient.

Within a short time the patient began to feel hot and flushed and complained that he could not see well. In the course of the next 2 hours, he became stuporous and difficult to arouse. Two hours after he had received the atropine, the stomach was washed out with a weak solution of potassium permanganate. During the next 24 hours the patient became comatose, the pupils dilated widely and were not responsive to light and the temperature rose. The respirations became increasingly slow and shallow, and at the end of 24 hours were so shallow that the patient appeared not to be breathing, but the pulse remained rapid and regular. He was given supportive therapy, including 5 per cent dextrose in 2000 cc. of water, and showed some improvement, and was then transferred to an Army evacuation hospital in an extremely critical condition.

The temperature was 104.2°F., the pulse 110, the respirations 20, and the blood pressure 101/60. Physical examination revealed a well developed and nourished man in a stuporous state who reacted only to very painful stimuli. The skin was extremely flushed and hot and perfectly dry, with no cyanosis. The heart, lungs, abdomen and extremities were normal. On neurologic examination, the pupils were extremely dilated and did not react to light. There was a bilateral external strabismus, and the eyes were not attracted by a moving light. The fundi were normal. There was no facial weakness. There was slight but not marked stiffness of the neck, with a mildly positive Kernig's sign. The deep tendon reflexes were bilaterally diminished but equal. The abdominal reflexes were diminished, and the cremasteric reflexes were equal. The Hoffmann sign was normal bilaterally. The Babinski and Chaddock reflexes were unequivocally positive bilaterally.

A spinal puncture was done, with the following normal findings. The initial pressure was equivalent to 160 mm. of water, and the cells were not abnormally increased. No facilities for determination of the protein or gold-sol curve were available.

Within 1 hour of admission, or 30 hours after the atropine was given, the axillary temperature was 105.2°F. Alcohol sponge baths reduced the temperature to 102°. Two thousand cubic centimeters of 5 per cent dextrose in water was given by vein and during the next few hours he voided several times, each time using the urinal. He was not incontinent. The urine showed no abnormality except for the presence of sugar, which was accounted for by the dextrose received by vein. Subsequent examinations showed no sugar.

On October 24, 40 hours after the dosage of atropine, the patient began to react. He knew his name but did not know where he was or the date. The temperature was 99.0°F., the reflexes were normal, and the Babinski and Chaddock signs were negative. The pupils were still widely dilated and showed no reaction to light. The patient was unable to accommodate his vision. There was no sweating.

On October 25, the patient was apparently improved. He was tremulous but co-operative and seemed rational. The temperature and reflexes were normal. He was restless and was given mild sedation with phenobarbital. In the evening of this day, during an air raid, he suddenly became maniacal, began to scream, stripped off all his clothes and ran about the hospital. He was restrained with great difficulty, and was sure that all those trying to return him to his bed were his enemies and were trying to harm him. He did not recognize the ward officer. He was given 0.5 gm. of sodium amytal intravenously, almost without effect, and an additional 0.5 gm. was immediately given. This induced normal sleep. Six hours later he again became extremely restless and it was necessary to repeat the dose of sodium amytal intravenously, making a total of 1.5 gm. in 6 hours. Within 4 hours the patient was again awake and was willing to stay in bed and take fluids and medication by mouth. He showed definite evidence of a paranoid psychosis, however, and believed that there was a plan in motion to do him bodily harm. It was impossible to reason with him on this subject, although in other matters he was moderately co-operative.

Since there was likelihood of further air raids, with subsequent difficulty in controlling the patient, it was decided to evacuate him to a hospital in a quieter locality. At about the time the patient was scheduled for evacuation, 4 days after the atropine dosage, he suddenly became alert and rational. When he learned that he was to be evacuated, he said that he remembered nothing of his activities during the last 4 days. When told something of what he had done, he apologized and asked that he might remain in the hospital rather than be evacuated, since he wanted to return to duty with his own organization. He was amenable to all forms of treatment. Later on the same day he first began to show slight sweating of the skin and his pupils began to react slightly to light.

On the following day, psychiatric examination showed good rapport, with normal emotional responses. There was no evidence of delusional thinking or hallucinations; in fact, the latter were not reported at any time during the psychotic episode. The patient showed complete insight into his previous paranoid delusions. He stated spontaneously that during the active period of the psychosis he had aroused momentarily, realized that his thinking was abnormal and then lapsed into his previous state without being able to help himself. There were moderate sensorial defects — that is, in orientation, recent memory and simple calculations.

The following information concerning the patient's background was obtained. He was an average, outgoing youngster, the sixth of 11 children. Throughout his schooling, which took him through the ninth grade, a year in the Civilian Conservation Corps, 2 years of steady work in a coal mine and his period of service, he was sociable, athletic and extroverted. The family relationships were normal. His direct antecedents showed no neuropsychiatric abnormalities. Both by history and by direct observation the patient's total personality development was the polar opposite of paranoid.

During the next 3 days, the patient was kept under moderate sedation with phenobarbital. In spite of the fact that there were other air raids, he was calm and composed during each one, showing no tendency to become maniacal or even excitable. The pupils became smaller during this time, approaching normal size 7 to 9 days after he had been given the atropine. He also noticed that his power of accommodation improved.

On November 1, the patient felt perfectly normal He was re-examined neurologically and psychiatrically. The psychiatric examination showed continued complete insight, and rapport and sociability were above average. The sensorial defects previously noted had entirely cleared. General comprehension was good, arithmetical reasoning fair, understanding of similarities and contrasts good, memory for a story in one paragraph good, and vocabulary fair, and he was able to repeat eight digits forward. Intelligence was estimated as low normal, and the defects previously noted were therefore regarded as significant and as related to the toxic action of the drug.

The neurologic examination was also normal except for slight hypesthesia over the distribution of the right saphenous nerve. At the height of the acute psychotic episode the patient had received a contusion on the inner aspect of the right thigh. It was believed that this explained the slight subjective sensory abnormality of the right saphenous nerve.

The patient was discharged to duty 2 weeks after the onset of his illness. He was normal in every respect and anxious to return to his old assignment.

Summary

A case of severe poisoning following the ingestion of 1.0 gm. of atropine sulfate is reported. The patient made a complete recovery in two weeks. This was punctuated by a brief but violent psychotic episode, consisting of confusion and paranoid delusions, in a person of basically normal personality makeup. The psychiatric improvement was concomitant with the first signs of sweating of the skin and reaction of the pupils to light. When discharged to duty, the patient showed perfect insight into his previous toxic psychosis.

References

1. Alexander, L., Moore, M., and Leary, T. Deaths from poisoning: incidence in Massachusetts. *J. Crim. Psychopath.* 3:100-111, 1941.
2. Comroe, B. I. Atropine poisoning: recovery after 7½ grains of atropine sulphate by mouth. *J. A. M. A.* 101:446, 1933.
3. Dameshek, W., and Feinsilver, O. Human autonomic pharmacology: use of acetyl-beta-methyl choline chloride (mecholyl) as diagnostic test for poisoning by atropine series of drugs. *J. A. M. A.* 109: 561-564, 1937.
4. Duggan, P. J. Mental disturbance following atropine administration. *Brit. M. J.* 1:918, 1937.
5. Heller, G. Atropine poisoning in child. *J. A. M. A.* 92:800, 1929.
6. McNally, W. D. *Medical Jurisprudence and Toxicology.* 386 pp. Philadelphia: W. B. Saunders Company, 1939. P. 231.
7. Métivier, V. M. Case of atropine poisoning. *Lancet* 2:1232, 1935.

SYMPOSIUM ON MEDICAL SOCIOLOGY

MINORITY VIEWS ON IMPROVING MEDICAL CARE*

ALLAN M. BUTLER, M.D.†

LAST week Dr. Bauer,[1] a trustee of the American Medical Association, spoke to you on that organization's view concerning the problems of medical care. The subject assigned me concerns views that differ from those of the American Medical Association. Strangely enough, in this democratic country, whose people believe in the free expression of minority opinion, the propriety of presenting such views on medical matters is questioned by some physicians. Hence, their mere consideration here will almost inevitably be subject to criticism. A politician would probably have declined the assignment. Indeed, an officer of the American Medical Association even refused an invitation to present to you the opinions of that body.[2]

To allay immediately either your fear or your expectation of radical opinion, let me assure you that I know of no one who does not heartily concur with the opinion expressed by Dr. Bauer last week — namely, that extension or change of our medical services should be accomplished by evolutionary processes. No opinions expressed here, therefore, will be contrary to that sound conservative dictum. I trust, however, that we agree, that evolution connotes reaction manifested by a series of changes. From the standpoint of sociology, one may ask whether it is failure to react or reaction to changing circumstance that results in revolution rather than evolution. Was it, for example, reactionary monarchy or liberal philosophy that precipitated revolution in the evolution of representative government?

EVOLUTION, NOT REVOLUTION

In considering a nationwide health program, it is pertinent to remember that, as stated by Terris,[3] compulsory health insurance, which is often considered to be an entirely new and unprecedented method of financing medical care in the United States, was used in this country as early as 1798. Much can be learned from study of the results of the act of Congress of that year, "for relief of sick or disabled seamen," which began by applying the method of monthly payroll deduction. Under this act grew the Marine hospitals. In 1884, Congress substituted a tonnage tax for the payroll-deduction method of financing the service, because the latter put American shipping in an unfavorable competitive position. Perhaps there is food for thought here concerning the financing of individual state sickness-insurance plans by payroll deductions.

Over a course of years, the Marine Hospital Service evolved into the United States Public Health Service, which, as you know, is supported by general tax funds, and which, it may be pertinent to remark, maintains high administrative and scientific standards as well as freedom from political influence. The same high standards and freedom from political patronage or corruption pertain to the use of federal funds under the federal programs for crippled children and maternal and child health and for the Emergency Maternal and Infant-Care Program. With such evidence before us, need we accept the statement that funds expended under a nationwide health program must inevitably fall prey to the spoils system? A recent article in the *New England Journal of Medicine* by Wendell Berge,[4] Assistant Attorney General of the United States, provides reassuring comment pertinent to this question and to other aspects of medical sociology.

With all the experience of this and other countries with government sickness insurance and tax-supported medicine, characterization of such medical-care programs as revolutionary reflects either historical ignorance or lack of awareness of current trends.

In 1937, as a contribution to the discussion of the subject of medical care in the United States, the Committee of Physicians for the Improvement of Medical Care formulated certain principles and proposals suggesting lines along which effort might be made by voluntary, local, state and federal agencies to improve medical care.[5–7] The introductory statement included the following:

> It is recognized that the medical profession is only one of several groups to which "medical care" is of vital concern. Close co-operation between physicians, economists and sociologists is essential. Nevertheless the medical profession should initiate any proposed changes because physicians are the experts upon whom communities must depend. Unless the medical profession is ready to co-operate with these other groups they cannot expect to play successfully the part which they should play, nor can they expect to enlist the sympathetic understanding of legislative bodies.
>
> It seems to us probable that certain alterations in our present system of preventing illness and providing medical care may become necessary; indeed, certain changes have already occurred. Medical knowledge is increasing rapidly and is becoming more complex. Changes in economic and social conditions are taking place at home and abroad. Medicine must be mobile and not static if medical men are to act as the expert advisers of those who convert public opinion into action.

*This is the eighth of a series of nine lectures on medical sociology given weekly at Harvard Medical School during January, February and March, 1945; they were sponsored by the Department of Preventive Medicine and were primarily intended for third-year students. These articles will temporarily replace the reports "Medical Progress."

†Chief, Children's Medical Service, Massachusetts General Hospital; associate professor of pediatrics, Harvard Medical School.

> The conviction is general that action should be taken only upon the basis of demonstrated need and as experience accumulates to indicate that such action is likely to attain its ends in a nation comprising forty-eight states in which climatic, economic and social conditions vary greatly.

In this conservative setting the so-called "Principles and Proposals" were then set forth.[5–8]

In the course of but seven years these principles and proposals have been generally accepted, and have already become almost ultraconservative. Yet — believe it or not — the committee was charged with revolution. Its members were accused by their fellow practitioners of stabbing American medicine in the back by releasing such radical material to the press. That the subject was the improvement of medical care and that the statement had been sent to the medical societies and medical journals of the country was generally overlooked. The fact that the editor of the *Journal of the American Medical Association*, prior to the date of release for publication, referred to the statement as a revolt probably augmented the publicity. Amusing in retrospect is the fact that several members were severely criticized by the trustees and staffs of well known hospitals because of advocating the following:

> That public funds should be available for medical research as essential for high standards of practice in both preventive and curative medicine; that public funds should be made available to hospitals that render service to the medically indigent and for laboratory and diagnostic and consultative services; and that in allocation of public funds existing private institutions should be utilized to the largest possible extent and that they may receive support so long as their service is in consonance with the above principles.

The advocacy of such proposals was felt to threaten the existence of private institutions. Well, many of these institutions are now seeking extensive financial support from the federal government, and, as remarked by Dr. Bauer, even the American Medical Association approves the allocation of public funds to private hospitals, as provided in the Hill–Burton Bill now before Congress. It is particularly amusing and informative to quote from an editorial that appeared at that time in the *Journal of the American Medical Association*.[9]

> It should not be necessary to point out *again* in the JOURNAL the danger of federal subsidies for medical schools . . . . The danger of putting the government in the dominant position in relation to medical research is apparent. . . . Still more serious is the fifth proposal, to the effect that the government subsidize private hospitals. . . . The tender of governmental funds to such institutions . . . appeals to the unthinking physicians who have endorsed these principles and proposals. . . . Most conspicuous on the list are the names of those deans and heads of departments in medical schools who may have signed because they saw a possibility of getting government money for clinics and dispensaries. . . . Certainly the unthinking endorsers of the . . . principles owe to the medical profession some prompt disclaimers.

The recent hearings on the federal financing of medical research and education before the Senate Subcommittee on Wartime Health and Education[10] provide the best answer to such caustic comment. Indeed, under the leadership of essentially the same officials, the American Medical Association has now proposed the establishment of a federal authority for medical research and education, with initial annual disbursements of $25,000,000 for medical research and $50,000,000 for medical education.*

Professional Leadership

Perhaps the American Medical Association owes the medical profession some belated disclaimers. At least there are many physicians who believe that this lack of forethought on its part has inhibited the development of wise professional opinion concerning the precautions that should be taken in such expenditure of public funds; for there are, of course, obvious dangers to be avoided. Since such lack of leadership is of serious significance to the medical profession and the public alike, should we forget the past, agree with Dr. Bauer by saying, "So what" and applaud the continuation of past policies in the present?† The American Medical Association still endorses the activities and emotional propaganda of the National Physicians' Committee for the Extension of Medical Service. Recent editorials in the *Journal of the American Medical Association* on the American Public Health Association's proposals for a nationwide health plan[12, 13] and on the Health Conference's "Principles of a Nation-Wide Health Program"[14–16] still attest to a continuation of the same intolerant policy of suppressing constructive consideration of the problems confronting the medical profession. Possibly we, according to good democratic and conservative principles, should reflect on the wisdom of this leadership in order that we may intelligently vote as members of the profession to continue or discontinue it.

Liberty of Thought, Speech and Press

Many physicians regret this tendency within the American Medical Association to restrict considered discussion and minority opinion, since they believe that it inhibits the development of sound progressive thought and is in no little degree responsible for the notoriously reactionary character of official medical opinion and policy. Certainly with few exceptions, such as the *New England Journal of Medicine*, the *Journal of the American Hospital Association*, *Hospitals* and the *American Journal of Public Health*, the record indicates that little opportunity is provided for the expression of minority opinion through the journals and other channels of so-called "organized medicine."‡ Moreover, minority opinion within these medical societies is frequently buried by the practice of expressing the majority opinion as a unanimous one. A book en-

*Recently the editor of the *Journal of the American Medical Association* appeared before a Senate committee and advocated the establishment of a national science foundation, which would finance medical research and medical education.

†Witness the recent American Medical Association program.[11]

‡The *Journal of Pediatrics* has recently published interesting discussions in a section entitled "The Social Aspects of Medicine."

titled *The Political Life of the American Medical Association*,[17] which should be read by all physicians, explains the manner of accomplishing this without openly transgressing the democratic principles of the Association. Is it or is it not odd that doctors, who are so generally individualists in character and practice, acquiesce in regimentation and suppression of minority opinion within their professional societies? Although most doctors are probably advocates of states' rights, they acquiesce in the American Medical Association's attempts to prevent state and other medical societies from expressing opinions different from its own.

For example, in June, 1934, the Board of Regents of the American College of Surgeons promulgated a prepayment plan for medical care at approved hospitals to members of the staffs of such hospitals and to physicians acceptable to such staffs. Immediately after this, the Judicial Council of the American Medical Association presented the following report,[18] which was unanimously adopted by the House of Delegates.

> WHEREAS, the American Medical Association, including 100,000 physicians, is the only democratic body representing the organized profession of this country through delegates regularly elected through county and state medical societies; and
>
> WHEREAS, other medical organizations and groups, representing selected groups of specialists, have from time to time issued pronouncements of policies in the field of medical economics and medical practice which do not represent the views of organized medicine and which purport to guide the medical profession and the public in the administration of medical affairs; and
>
> WHEREAS, the House of Delegates of the American Medical Association has repeatedly condemned the issuing of such announcements and policies . . .; and
>
> WHEREAS, the Board of Regents of the American College of Surgeons, assembled in Chicago on Sunday, June 10, promulgated a policy including a prepayment plan for medical care restricted to so-called "approved hospitals," to members of the staffs of such hospitals and to physicians acceptable to such staffs; and
>
> WHEREAS, this action of the Board of Regents of the American College of Surgeons has been spread to the people of the United States through the public press on the opening day of the annual session of this House of Delegates; therefore be it
>
> RESOLVED, That the House of Delegates request the Board of Trustees of the American Medical Association and Judicial Council to ask the Board of Regents of the American College of Surgeons, who are themselves members of the American Medical Association, to explain the reasons for their action and to justify the attempt by this small group within a specialistic organization to legislate for all the medical profession of this country, truly represented only by the American Medical Association.

Concerning the editorial in the *Journal of the American Medical Association* supporting this resolution, Dr. J. H. Means[19] in a letter to the editor commented:

> Your editorial entitled "Organized Medicine and Medical Care," July 14, 1934, is a truly amazing utterance. By it we learn that members of what you are pleased to call organized medicine are entitled to express no opinions on the great problem of medical service to the community, either as individuals or as minority groups, which differ . . . from the official opinions of the House of Delegates of the American Medical Association. . . . To say that [minority] groups are morally obligated to remain silent, when their honest convictions run contrary to official doctrine, is hardly appropriate in a democracy like ours, whose founders sought particularly to safeguard minority rights and opinions. I would like to quote . . . from an editorial in the July 6 issue of the *Harvard Alumni Bulletin*. "Those who call for the preservation of American 'Institutions' do not always remember that among the most venerable and cherished of these institutions is liberty of thought and speech and press, and that nothing in America could be more 'radical' than its suppression."

The Board of Trustees of the American Medical Association replied, "It does not seem desirable to publish your communication addressed to the *Journal*."[19]

As stated in a paper read before the United States Chamber of Commerce,[20, 21] an extreme example of an attempt to suppress discussion and inhibit activities by physicians is furnished by the proposal in 1938 of the Council of the Medical Society of the State of New York to amend the bylaws as follows: "The component county medical societies, their officers, committeemen and members shall not initiate any policy, propose any legislation or participate in any activities that are contrary to the policies of the Medical Society of the State of New York." Fortunately, this was so objectionable to many members that the amendment was not accepted. Dr. Bauer has taken exception to this reference because the proposal was overwhelmingly rejected at the meeting of the Council. I wonder, however, if he would not concede that discussion of the proposal prior to the meeting was significant. The recent publications of the Association of American Physicians and Surgeons and that association's advocacy of professional excommunication of physicians who do not subscribe to its policies attest to the fact that proposals of this nature do not altogether lack professional endorsement.

This matter of suppressing discussion within the profession is mentioned and briefly documented here not in the spirit of hostility, but rather to present the opinion of those who plead for a liberalism within the medical profession that will permit expression of minority opinions and thus tolerant consideration, reasoned debate and constructive criticism. Only by such democratic processes will the complicated problems of providing better medical care effectively be solved. Only by free discussion of current problems will evolution be orderly and revolution be avoided.

The Guild Nature of the American Medical Association

That the American Medical Association should defend the present individualistic fee-for-service type of medical service is not surprising, as remarked by Dr. Franz Goldmann in the discussion following his lecture[22] of several weeks ago. The great majority of its members are practicing and earning their living by that type of practice. These practitioners in some respects enjoy an independence that in our highly organized modern society is almost

unique. That they should cherish the independence, freedom and artistic quality of their individual endeavor is natural and, in so far as it does not too greatly limit the quality and efficiency of their service, desirable. But the increase in medical knowledge, in the facilities necessary for its adequate application and in the cost of medical care render the average practitioner's position increasingly difficult and vulnerable. As so well outlined by Dr. Dean Clark[23] in the second lecture of this series, the practitioner's income is meagre, his task and responsibilities immense, his independence more imaginary than real, and his future uncertain. He is therefore worried by, sometimes alarmed by and occasionally resentful of the change in the structure of medical practice that is slowly but surely occurring. His elected representatives, who are either salaried officials or elderly physicians successful under the present system, are usually the most ardent advocates of fee-for-service practice and bitterly defend its existence.

A hundred years ago the guilds in trying to protect their artisan interests resisted the integration of industry. Yet for better or for worse, integrated mechanized industry grew, the artisan was displaced, unemployment appeared, and wages fell. The industrial revolution came. Perhaps it is pertinent to ask: Can the American Medical Association in playing the guild role defend the physician artisan of today? Many think it a losing game. To find the American Medical Association on the defensive, as evidenced by Dr. Bauer's lecture last week, and fighting only a delaying action against the progressive integration and prepayment of medical care is not so unexpected. It may, however, be puzzling to the young physician who has learned the medicine practiced by highly integrated group services, who aspires to contribute effectively to a high quality of medical service and to participate in the development and application of new knowledge and who has no vested interest in what may, not too inappropriately, be called the *status quo ante bellum*.

It is particularly pertinent that the young physician should consider the pattern of medical practice that will best serve society by quality and amount of service and thus better the public's respect for and financial support of the profession that will be his in the future. Will his experience with the inevitably defective emergency medical services of the armed forces make him an advocate of individualistic fee-for-service practice? Or will he, discounting the handicaps imposed by the emergency nature of these services, be impressed with the possibilities of well integrated group salaried practice? The considerations of a group of British physicians, as given in the *Medical Planning Research Interim General Report*,[24] set forth interesting opinion. The recent British White Paper provides more evidence concerning British trends. How irrelevant to current problems is the manner in which representatives of the American Medical Association harp on the past defects of the English system, when those defects have been so generally recognized and are being corrected, and when no one is advocating the adoption of that system! Parenthetically, it may be remarked, that if the American Medical Association were correcting its past policies as constructively as are the British, mention of them would be irrelevant. Important questions about the English system are: Is it being discarded or extended? Do the doctors advocate its discontinuance? On the basis of past experience, how are they now proposing to extend government insurance? Instead of discussing these pertinent questions, spokesmen of the American Medical Association continue to comment on the English system of government sickness insurance in the manner that the Michigan State Medical Society[25] in 1934 declared was misrepresentation of fact and that representatives of the British medical profession have frequently described as inaccurate. Referring to comments made by the Bureau of Medical Economics of the American Medical Association, the secretary of the British Medical Association writes: "Almost every page of the pamphlet provides matter for criticism on the score of inaccuracy or unfair presentation. . . . [It] does not appear a very reliable account of the British Health Insurance system."[26] Another indictment of this bureau comes from an article by E. L. Brown,[26] research associate of the Russell Sage Foundation. "The potentially important Bureau of Economics," he writes, "which publishes statistics and studies of the distribution of physicians and forms of medical practice, is not only ultraconservative in philosophy, but the facts it presents are often incorrect or interpreted with bias, and even its statistical work is undistinguished."

The slogans and phrases resorted to by American Medical Association spokesmen are felt by many to favor an emotional rather than tolerant consideration and too frequently to constitute a misinterpretation that inhibits constructive thought. "It now becomes necessary," according to Dr. Sensenich,[27] a trustee of the American Medical Association, "to protect the public by opposing the substitution of an unAmerican system of medicine with bureaucratic regimentation of patients and physicians, such as would destroy those American qualities of medical service that are most important to health and the American way of life." The National Physicians' Committee, which is supported in part by donations from pharmaceutical houses and whose activities have been endorsed by the House of Delegates of the American Medical Association, spends $250,000 a year on such emotional propaganda, distributing dramatic pamphlets throughout the country through the agency of drugstores. Even a trustee of this committee, Dr. Leland S. McKittrick,[28] characterizes its attack on the

Wagner–Murray–Dingell bill as "violent [and] somewhat undignified." The old bogie of a so-called "third party" coming between doctor and patient is again given a leading role. This cry concerning the evils of a third party and this charge that any modification of individualistic private practice will limit the "free choice of physician" have been used so loosely and misleadingly in regard to almost any well organized group health plan as to suggest either dishonesty or lack of intelligence. This propaganda does not mention that the excellent medical care provided by the Mayo Clinic, the Lahey Clinic, the Baker Memorial Unit of the Massachusetts General Hospital and all the larger university teaching hospitals throughout the country includes not the evil but the benefit of a third party. The propaganda does not mention that a majority of the American people have little free choice of physician in any significant sense. And such propaganda concerning the Wagner–Murray–Dingell National Health Bill[29] does not mention the fact that under this plan millions of people would be provided for the first time with the opportunity of choosing a family physician and that thus the American public would experience a greater free choice of physician than pertains today.

At a time when a recent survey made by the National Opinion Research Center of the University of Denver indicates that 68 per cent of representatively sampled Americans favor an extension of the Social Security Law to cover payments for doctor and hospital care, the distribution of distorted and hysterical propaganda may satisfy elderly physicians whose concern is to hang on to the *status quo* for a few years, but hardly contributes a sound solution to the public demand and your professional future. Are not your and the public's interests more effectively served by the careful analyses and constructive criticisms set forth in statements by the Committee of Physicians for the Improvement of Medical Care, Incorporated,[30] and by the Physicians' Forum,[31] and in the pamphlet covering the Health Program Conference?[15]

Adequacy of Medical Care

Why is the American Medical Association so touchy about the adequacy of medical care? To state, as Dr. Bauer and its representatives so often do,[1, 27] that medical care in the United States is better than in any European country having compulsory sickness insurance is irrelevant and misleading. It implies that compulsory sickness insurance rather than the economic and social disorders incident to the bellicose state of Europe during the last thirty years is the limiting factor in the advance of European medicine. The proper test of the adequacy of our medical care, as stated by Dr. I. S. Falk,[32] "is not that health is better today than it was a decade or a generation or a century ago or than in some other country, nor that medicine and public health accomplish more now than they did then. By such comparisons, health provisions were good in 1900 and perhaps even in 1850. The valid test is whether we do well and effectively today what we know how to do and can do. By this test there is no ground for complacence."

The American Academy of Pediatrics at its annual meeting in November, 1944, unanimously agreed that "a large number of children do not receive preventive and curative care compatible with present-day standards of good pediatric care."[33]

The Maternal Mortality Committee of the Committee on Maternal Health of the Minnesota State Medical Association[34] makes the following statements in the summary of its report:

1. From July 1, 1941, through June 30, 1942, a study was made of the maternal mortality in the State of Minnesota.
2. The absence of any consultation in 56 per cent of the cases, the presence of less than 10 per cent adequate consultation, and the inadequacy of two thirds of the consultations which were obtained raises certain obvious questions.
3. With a liberal interpretation, 43 patients (38.4 per cent) were well when first seen and died later.
4. One half of the inadequate consultations in our series were supplied by specialists, men who by training and experience should be capable of furnishing superior counsel.
5. There was an unfortunately high incidence of operative deliveries (56.2 per cent); some of the deaths resulted directly from the operative procedure.
6. Seventy-seven (82 per cent) had no pelvic mensuration or less than the minimal requirements for adequate prenatal care laid down by the Committee for the Minnesota Maternal Study.
7. The great majority of physicians' office records were of very little value as regards accurate information, if indeed there were any records.
8. According to the minimum requirements for adequate obstetrical care as adopted by this committee, adequate care was given in only 1.8 per cent in the prenatal period, 6.3 per cent in labor and for delivery and 3.6 per cent in the post-partum period.
9. A blood Wassermann has long been considered an absolute essential — yet 73.2 per cent of these cases did not have venepuncture for a Wassermann test at the first prenatal visit; and 62.5 per cent had no Wassermann test in association with the pregnancy.
10. The Committee agreed that 82 deaths (73 per cent) were preventable and that in all but 4 cases the physician was wholly or partially responsible.

Under the Michigan Community Health Project, an attempt has been made for several years to encourage physicians to immunize children by assuring each physician remuneration for such procedures. In the area covered, the approximate percentages of children immunized against diphtheria up to 1944 were as follows: under one year, 10 per cent; under two years, 25 per cent, and under five years, 37 per cent. The corresponding figures for immunization against smallpox were 4, 16 and 34 per cent.[35]

The Interim Report on Wartime Health and Education from the Senate Committee, popularly known as the Pepper Committee, presents findings and recommendations that deserve consideration.[36]

Many physicians believe that the first step to improving medical care is a frank admission of room for improvement. This is why I have dwelt at such

length on the American Medical Association's attitude. If the medical profession would approach the problem with good will and eagerness for improvement, much could be accomplished. If, on the other hand, spokesmen of your profession belittle the need for improvement and display intolerance toward discussion, the evolution of beneficial change is inhibited. "A major obstacle," says a recent reviewer in *Fortune*,[37] "has been organized United States medicine, as represented by the century-old American Medical Association."

In a unanimous ruling concerning the suit brought by the Department of Justice against the American Medical Association and the District of Columbia Medical Society for restraint of trade, the Court of Appeals of the District of Columbia, through Justice Miller, made the following statement[26]:

> Professions exist because the people believe they will be better served by licensing especially prepared experts to minister to their needs. The licensed monopolies which professions enjoy constitute, in themselves, severe restraints upon competition. But they are restraints which depend upon capacity and training, not special privilege.
>
> Neither do they justify concerted criminal action to prevent the people from developing new methods of serving their needs. There is sufficient historical evidence of professional inadequacy to justify occasional popular protests.
>
> The better educated laity of today questions the adequacy of present-day medicine. Their challenge finds support from substantial portions of the medical profession itself. The people give the privilege of professional monopoly and the people may take it away.

The provision of a leadership that will defend the prestige and privilege of your profession by recognizing changing circumstance and directing constructive action depends in no small degree on you young physicians.

Increasing Costs

As medicine has become more effective and the ultimate burden of illness to society has diminished, the cash costs of medical care have increased. As society has become more industrialized and individuals have become more dependent on wages, illness has with increasing frequency been associated not only with increasing costs but also with loss of wages and has therefore entailed greater financial stress. Thus, the inability of the sick to meet the costs of illness has increased. Families with incomes of $3000 a year are reported by the American Medical Association to be unable to meet the costs of serious illness. Hospitals in large cities admit persons as charity patients whose family income is $2500 a year. Physicians therefore today provide free service to many persons whose incomes are more than double the income of the average resident of the United States. Viewed from another aspect, our hospitals for chronic disease are used by persons whose productive abilities before affliction represented a cross-section sample of the community. Chronic illness in depriving them of their earning capacity, and subjecting them to the expenses of modern medical care has rendered rich and poor alike unable to meet the continued costs of such illness. You or I, regardless of our present earning capacity, may, except by the grace of God, be the chronic invalid of tomorrow who will be a charity patient in a public institution. Thus, the charity tradition in medicine has extended far beyond its original concept. It now approximates a billion-dollar business that concerns a large portion of society. One may well ask: How fairly is the burden of this charity business dispersed? How adequately is it financed? How efficiently is it operated?

Although there is no doubt about the medical profession's carrying a great share of the burden, the degree to which this burden is distributed among doctors and the indirect recompense they receive for charity work is seldom considered in a business-like manner. The physician charges his private patients an arbitrary amount, according to a rough estimate of ability to pay, which will be adequate to compensate for the service rendered those who cannot or do not pay. This custom both accepts as satisfactory the meager information on which the arbitrary professional fees are based and ignores the totally inadequate means of distributing the amounts so collected among physicians according to the actual charity services rendered. Not infrequently the physician whose fees are highest contributes the least charity service. Too frequently the doctor whose patients can pay but small fees serves many without remuneration. Custom also results in the physician's giving medical care to the hospital's charity patients without remuneration in return for the prestige and experience so gained and for the privilege of utilizing hospital facilities for the care of his private patients. For the latter, however, the physician is hardly beholden to the hospital, because the latter, if reasonably well managed, makes a profit on the private patients whom the doctor provides. What happens to the hospital if the doctor provides no patient?

Thus, in these and possibly other respects the rationale of the current system of indirect professional remuneration for charity service is not too clear. But whatever the rationale, the amount of such service rendered by the profession attests not only to an awareness of its public-service role but also to its long-standing recognition of the inability of many persons to meet the costs of illness.

Great as these charity services and high as the standards are, they are but a fraction of what they might be. Indeed, there are those who believe that the unique persistence of the charity tradition is one of the principal impediments to a better quality of medicine. What is the evidence?

It has already been intimated that the charity tradition is the principal cause of the arbitrary character of professional charges. Can it be said with fairness that it has been intimately related to present inadequate financing of professional and hospital service alike and underpayment of labora-

tory and other hospital personnel? Or is it a primary factor in the lack of integration of hospital medical care and of student training?

With the exception of a few major teaching hospitals or private clinics, the service of doctors to hospital-ward patients lacks continuity. In the average hospital, the practitioners of the community care for the charity patients on a monthly rotation basis. One visiting physician may do the diagnostic workup of a case and start a well planned therapeutic regime that is disregarded or discarded by his successor. Or even if the planned therapy is continued, the doctor rarely has an opportunity to follow the therapeutic result intimately enough to provide maximal benefit to himself or his patient. Even if the patient returns to the outpatient department for follow-up, the chances are that he will be seen by a doctor other than the one who cared for him as a ward patient.

In the large teaching hospitals, the salaried staff may provide more continuity for ward care. But here also there is a lack of integration between outpatient and ward care. And here, too, the continued rotation or promotion of interns and residents through the various divisions of the hospital limits the continuity of the care they render.

Because physicians in the outpatient department provide their services on a voluntary basis for one to two and a half hours once or twice a week, continuity of service for the patient that needs care more than once or twice a week is almost impossible. If the examining physician wishes a consultation, he frequently cannot see the patient with the consultant because the consultant holds his outpatient clinic on another day. Thus, to no little degree, the charity aspect of hospital care limits the quality of such service, even though this may be good as compared to the average obtained from the private practitioner. Moreover, because it is an important factor in restricting hospital medical care to the ward and outpatient department, it limits the extent of the service rendered by integrated professional personnel and hospital facilities.

Quite rightly the physician feels that he is contributing enough charity service at the hospital. He therefore resents the extension of hospital service to the home lest it lead to one of two consequences, equally undesirable for him: that he be asked to see the patient at home who cannot afford to pay; or that the hospital through its resident staff provide home care to the patient who might otherwise pay a physician. Could there not be as clear a distinction between the paying and nonpaying patient at home as in the hospital? Resolution of the ambiguity would permit an extension of hospital services to include home care of the nonpaying patient. It would relieve the practicing doctor of the burden of home care of the nonpaying patient without infringing on his paying practice.

Such an extension would favor economy by lessening unnecessary hospitalization. For provision of home care by the hospital service would prevent not only unnecessary entry to hospitals but also undesirable prolongation of hospitalization. Second, it would improve medical education. The medical student during his four years and the intern and resident during an additional two to four years of hospital training rarely come in contact with a patient in his normal environment. Their basic patterns of medical thought about sick patients develop in the environment of hospital beds, operating rooms, laboratories and crowded outpatient clinics. Under these circumstances, it is difficult for the young physician to appreciate the particular stresses and strains in the daily life of his patient — economic burdens, family conflicts and mentally retarded children. He therefore forgets and forms the habit of belittling the effect of the patient's illness on his life and of his environment on his illness. Thus, the students' teaching tends to be limited to a therapy prescribed by medical science under the conditions pertaining in the hospital environment. These same limitations as regards personal and social implications apply equally to nursing education.

No wonder there is a demand for teaching psychosomatic medicine and more personal nursing care. But such emphasis will accomplish little. Students and teachers must be brought in contact with the patient's natural environment. The information it provides and its bearing on the health of the patient and the benefit of therapy should be utilized and appraised as thoroughly as are the data provided by the hospital laboratories. The solution of this problem of medical education is the extension of medical care from the hospital ward and outpatient service to the patient in his home.

The cost of medical education is also to some extent related to the charity tradition. As already mentioned, after his high-school education, three or four years of college and four years of medical school, the young doctor spends two to four years practicing his profession in a hospital. During this period he contributes from twelve to eighteen hours a day of service to his patients. On the assumption that the experience he thus obtains has a value that approximates that of the service he renders, he receives little or nothing the first two hospital years, perhaps $500 the third year and possibly $1000 a year for the fourth year. The students who can finance these many unremunerative years of medical education are not necessarily the best students or doctors. The system that provides such meager recompense therefore limits the selection of doctors. This undesirable limitation could be lessened if house-officer physicians were paid according to the value of the services they render. Surely the acquisition of valuable knowledge and experience in the early years of practice is not confined to the medical profession; yet the discrepancy between

remuneration of the young physician and the value of his contribution to society appears not only to be unique but also to be dependent on the unique charity tradition of his profession.

Proud as we may be of the generosity and idealism stimulated by this tradition in the past, one should not permit sentiment to obscure the incompatibilities between it and reality in the present. Much evidence indicates that the charity tradition not only imposes too heavy a burden on the profession but also provides a quality of medicine well below that which could readily be provided. The dislocation of medical services by the war, the inevitable relocation of many medical veterans and the current discussion of a national health program make consideration of possible revisions of economic aspects of our system of medical care particularly opportune.

Reducing the Burden by Insurance

At long last the public and the medical profession have come to realize that those who are unfortunate enough to suffer illness cannot be expected to pay the costs of modern medical care at the time when illness has decreased their income and increased their expenses. They appreciate that the liability is too extensive to be assigned to charity. They also see that post-payment bank-loan schemes of meeting the costs of illness merely provide more time to pay the costs that have fallen heavily on the unfortunate sick, whereas insurance or tax-supported services spread the costs to include those who have not suffered the financial burden of illness. Thus, schemes involving the latter methods of paying medical costs are being generally advocated. If wisely devised, there is little doubt that they will result in the more adequate financing of medical care. If they are unwisely devised, there will be little improvement in the financial support of better medicine and a wasteful expenditure of public funds on poor medical care.

The Committee on the Costs of Medical Care not only recognized this in 1930 but also recognized the important implication as regards the pattern of medical practice.[38] This committee, as you know, recommended that the budgeted medical service for home, office and hospital care be furnished largely by integrated professional groups, preferably organized around hospitals.

Representatives of the American Medical Association and of the state medical societies have belatedly admitted that application of the insurance cost-sharing principle to medical costs is per se neither economically unsound nor detrimental to the quality of medical care. But this admission merely introduces the problem. It neither contributes to the solution nor indicates the implication regarding the structure of medical practice that the Committee on the Costs of Medical Care recognized. Among the factors that deserve careful consideration in any scheme is the establishment of proper administrative supervision and the development of well integrated units for providing medical care.

The Problem of Administrative Supervision

The payment of the costs of medical care by a third party — whether the government or a private agency — necessitates an administrative supervision of the cost and quality of the care provided that is not required when the cost is paid for by the recipient. When the transaction is between doctor and patient, there is a check on the amount of service requested and rendered, but when a third party pays for the service, there is no such check. The wide experience of commercial insurance schemes shows that 85 per cent of patients and doctors play fair, but that some 15 per cent run up costs that embarrass the schemes financially. Hence a mechanism for supervising the quality and quantity of care rendered is desirable. This, of course, cannot be provided without to some extent infringing on the almost complete independence that the individual practitioner thinks he enjoys today. The desire to maintain this pseudoindependence and to avoid being subjected to supervision is the main reason why the medical profession has opposed insurance medicine so long. Many physicians and medical associations, in a manner reminiscent of the old guilds, are defending this independence of the solo practitioner. Thus, as insurance medicine becomes inevitable, they are advocating forms of insurance medicine that are devoid of supervision.

Their first choice in defending this guild interest of practitioners is that payments under any government insurance scheme be made as cash benefits to patients, not as payments to doctors for service. This places a certain amount of money in the hands of the patient and leaves the doctor free to charge what he wishes. Obviously it is little more than a public dole under the pretext of being medical care. It makes no provision for economy in the expenditure of public funds, nor does it reflect any concern for the quality of care purchased. Since this method of payment is usually recommended for governmental schemes and has rarely been advocated for any of the several schemes operated under the aegis of medical societies, the impracticability of such cash benefits is apparently fully appreciated but merely ignored in connection with government-insurance medicine.

The second choice of these defenders of the independence of physicians is that doctors be paid on a fee-for-service schedule by the insurance agency and be free to charge an additional fee to the patient. Under this scheme, for example, a doctor might be paid $150 by the insurance agency for an appendectomy. The doctor then charges the patient an additional $100, which nets him perhaps $50 more than his regular private fee of $200. Such a scheme ignores the equitableness of the total cost

to society and hardly distributes the cost of medical care satisfactorily. Moreover, it provides but little check on quality of care, other than that of gross abuse as detected by the accounting office.

The Development of Integrated Medical Services

A potentially large insurance scheme that is now being organized recognizes the limitations of an insurance plan as regards economy and high quality where the service is rendered by individual physicians on a fee-for-service basis. This scheme, therefore, proposes to provide the medical service through groups of physicians organized about hospitals. The success of the plan would appear to depend largely on two things. First, will the medical profession participate in the organization of such group services to be administered and integrated through executive committees of hospitals and their staffs? Second, will the public appreciate and accept the medical services of such groups rather than the services of individual physicians? The answer to the latter question will probably be "Yes." The answer to the former will depend largely on how extensively these organized groups of physicians can be made to include the majority of physicians in the area covered by the service. The problem involves the so-called "closed" or "open" aspect of hospital staffs. It seems clear that there will have to be well considered compromise between the two extremes of staffs closed to but a few doctors and open to all. However, if an adequate administrative or executive control body can be established for each hospital group, even teaching hospitals should be able to open their staffs appreciably without jeopardizing their standards or teaching functions.

The utilization of such group hospital units in the provision of medical care under medical-insurance schemes would provide certain definite advantages. Picture the potentialities of a community medical service emanating from the well integrated salaried staff and hospital facilities of the New York, the Presbyterian, the Bellevue, the Johns Hopkins, the New Haven or the Massachusetts General Hospital financed by insurance payments for the employed, government payments for the indigent and complementary voluntary contributions; the last being used primarily to foster advances and improvement in medical care. Reasonably sound calculations indicate that physicians' salaries of $3000 to $15,000 a year could be provided. The intermittent services of ward and outpatient physicians would be corrected. The lack of integration between inpatient and outpatient and home care would no longer be inevitable. The control of the functions of the cooperating physicians by the administrative committee would permit an opening of the staff without jeopardizing its standards. This extension of hospital staffs under controlled supervision would in itself raise the quality of medical care in no little degree.

Such a development of group services about hospitals fits in with the Hill–Burton bill for extending and integrating hospital facilities. This proposed legislation would provide a type of service under a national health program, such as proposed by the Wagner–Murray–Dingell bill, that would limit many of the dangers inherent in governmental participation in the financing of medical care. It would maintain control of medical service at the local level by the existing units of medical service that have, under the present system, demonstrated their value in both medical education and medical practice.

Should teaching hospitals be properly incorporated into any such insurance scheme, they would receive an income for services rendered that should cover the cost of these services and thus alter the hospitals' character as charity institutions. Since no medicine is more expensive than cheap medicine, it is essential that this income be sufficient to cover adequately the costs of both hospital and professional services. A clear distinction between these two categories of service and the allocation of specified charges for payment of physicians seems highly desirable to avoid exploitation of physicians by institutions. The result of inclusion of house-officer services among the professional services to be remunerated would be that young interns and residents would receive more adequate salaries than pertain today and that the cost of medical education would thus be reduced. Further elimination of the present financial barrier to entering the medical profession might be accomplished by provision of federal loans to needy students on a simple, businesslike basis. The loan would be granted to qualified applicants on the basis of repayment by working in government hospitals or other medical services. Such a logical stipulation would prevent abuse of the privilege. The Government's risk would be little, and benefit would be great. The services of these physicians in governmental institutions would improve the quality of their staffs and make their conversion to teaching institutions possible. Should this occur, improvement in the quality of service would follow almost axiomatically. Such a financing of medical education would benefit society and student alike.

The adequate financing of research and of medical education in general deserves, of course, a consideration that will remove both of these from a precarious dependence on philanthropy.

Whether the major portion of the funds collected under insurance plans be the result of voluntary association or of legislation, the responsibility placed on the administrative agencies for their wise disbursement should be stressed. An increase in the collection of funds for medical needs does not in

itself assure improvement in the financing of medical care.

To some persons such a development of group service by hospitals and their staffs as indicated here may appear utopian. Let it be appreciated, however, that failure to provide for the development and utilization of such services under any extensive insurance scheme may destroy the very medical units from which the past improvement in medical care has emanated and on which future progress depends. Such being the case, it appears to be of concern to those interested in better medical care — doctors and laymen alike — to see that provision for the utilization and development of such services is included in any state or national health plan.

An orderly plan of financing and operating an efficient system of providing medical care should neither be damned as impractical nor hailed as the millennium. The resources made available by the one and the quality of care attained by the other will depend on a manifestation of the qualities that have brought medicine to its present high level. Lessening the occasion for charity and the limitations incident to it should provide a wider, not a narrower, field for the idealism that has under unfavorable circumstances sustained charity medicine in the past.

* * *

Such are some of the views on improving medical care that it seemed should be included in the portion of this symposium assigned to me. Some, which clearly were minority views but yesterday, are becoming majority views today. What they will be tomorrow is of obvious concern to you and, indeed, may depend on what you think about them.

References

1. Bauer, L. H. Point of view of organized medicine toward distribution of medical care. *New Eng. J. Med.* **234**:225-230, 1946.
2. Jones, T. D. Personal communication.
3. Terris, M. Early system of compulsory health insurance in United States, 1798-1884. *Bull. Hist. Med.* **15**:433-444, 1944.
4. Berge, W. Justice and future of medicine. *New Eng. J. Med.* **231**:721-729, 1944.
5. Committee of Physicians for Improvement of Medical Care, Inc. Presentation of certain principles and proposals in the provision of medical care. Statement 1. 789 Howard Ave., New Haven, Connecticut, November 7, 1937.
6. Editorial. Principles and proposals for medical care. *New Eng. J. Med.* **217**:793, 1937.
7. Editorial. Still more on "Principles and Proposals." *New Eng. J. Med.* **217**:884, 1937.
8. Peters, J. P. Story of principles and proposals for improvement of medical care. *New Eng. J. Med.* **217**:887-890, 1937.
9. Editorial. The American Foundation proposals for medical care. *J. A. M. A.* **109**:1280, 1937.
10. Subcommittee on Wartime Health and Education, United States Senate. Wartime health and education. Hearings, Part 7. Medical Research I. Washington, D. C.: U. S. Government Printing Office, 1945.
11. Editorial. A. M. A. Program for medical care. *New Eng. J. Med.* **233**:223, 1945. Also, Constructive program for medical care, American Medical Association. *Ibid.* **233**:224, 1945.
12. Editorial. American Public Health Association health insurance declaration. *J. A. M. A.* **126**:434, 1944.
13. American Public Health Association. Medical care in a national health program. *Am. J. Pub. Health* **34**:1252-1256, 1944.
14. Editorial. Principles of a nation-wide health program. *J. A. M. A.* **126**:640-642, 1944.
15. Principles of nation-wide health program. Report of Health Program Conference, Committee on Research in Medical Economics. November, 1944.
16. Faxon, N. W. Future of medicine: principles of nation-wide health program. *New Eng. J. Med.* **231**:862, 1944.
17. Garceau, O. *The Political Life of the American Medical Association.* 186 pp. Cambridge, Massachusetts. Harvard University Press, 1941.
18. Editorial. Organized medicine and medical care. *J. A. M. A.* **103**: 112, 1934.
19. Means, J. H. Personal communication.
20. Butler, A. M. The medical profession's reaction to compulsory health insurance. Social Security in America. Chamber of Commerce of U. S. A. Washington, D. C., 1944.
21. Butler, A. M. Provision of adequate medical care. *State Government* **17**:290-293 and 302, 1944.
22. Goldmann, F. Foreign programs of medical care and their lessons. *New Eng. J. Med.* **234**:155-160, 1946.
23. Clark, D. A. Problems in distribution of medical care. *New Eng. J. Med.* **234**:53-58, 1946.
24. Medical planning research. Interim general report: report on proposed reorganization of medical practice in Great Britain. 4-32. Medical Administrative Service, Inc., New York.
25. Luce and Sinai. Mutual health service. *J. Michigan M. Soc.* **30** (Supp. 2): 12-18, 1934.
26. Brown, E. L. Comparative developments in social work, medicine and law. *The Family*, November, 1943. Pp. 3-15.
27. Sensenich, R. L. New medical programs and the American Medical Association. 17-25. Health insurance in America. Washington, D. C.: Chamber of Commerce of United States, 1945.
28. McKittrick, L. S. Medical practice and its future. *New Eng. J. Med.* **234**:188-194, 1946.
29. Editorial. Medical care for hundred million people: summary of Wagner-Murray-Dingell Bill (S. 1161: H. R. 2861). *Medical Care* **3**:239-256, 1943.
30. Committee of Physicians for Improvement of Medical Care, Inc. Statement 12. Summary and critical analysis of medical features of the Wagner-Murray-Dingell Bill (S. 1161-H.R. 2861). December, 1943. Statement 14. Comments on Senator Pepper's interim report from subcommittee on war-time health and education, subcommittee report No. 3. July 11, 1945. Statement 15. Public medical care programs and medical education: effects on quality of medical practice. July, 1945. Statement 16. Summary and critical analysis of medical features of Wagner-Murray-Dingell Bill (S. 1050). August, 1945. 789 Howard Ave. New Haven, Conn.
31. Editorial. Wagner-Murray-Dingell Bill. *The Physicians' Forum Bull.* May, 1944. Pp. 2-6.
32. Falk, I. S. Proposed extension of social security program, with special reference to health and medical aspects. *New Eng. J. Med.* **230**:243-249, 1944.
33. Report of committee on consideration of child health in post-war period. *J. Pediat.* **25**:625-630, 1944.
34. Maternal Mortality Committee of the Committee on Maternal Health of the Minnesota State Medical Association. Minnesota maternal mortality study: general summary. *Minnesota Med.* **27**:557-562, 1944.
35. Helmholtz, H. Personal communication.
36. Subcommittee on Wartime Health and Education, United States Senate. Wartime Health and Education, Interim Report No. 3. January, 1945. Washington, D. C.: U. S. Government Printing Office, 1945.
37. America and future. United States medicine in transition. *Fortune* **30**:156-163, 184, 186, 188, 190, and 193, 1944.
38. Final report of Committee on Costs of Medical Care. 150 pp. Chicago: The University of Chicago Press, 1932.

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Weekly Clinicopathological Exercises

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

BENJAMIN CASTLEMAN, M.D., *Associate Editor*

EDITH E. PARRIS, *Assistant Editor*

CASE 32081

PRESENTATION OF CASE

A seventy-three-year-old man was admitted to the hospital in an unconscious state.

According to his wife he had been in good health except for hypertension of about ten years' duration. Ten months before admission he had a "stroke," with paralysis of the left side of the face followed by partial recovery. One and a half hours before admission he returned home from a walk and collapsed, being found unconscious.

Physical examination revealed a slightly cyanotic, restless man with cold hands and feet. The pupils were small and equal. The eyegrounds were not remarkable. The right elbow was stiff. The left leg was smaller than the right. The cardiac rhythm was irregular, with an apical systolic murmur. The lungs were clear. The liver was questionably enlarged. The right knee jerk was more active than the left. The Babinski sign was absent on both sides.

The temperature was 98°F., the pulse 150, and the respirations 30. The blood pressure was 110 systolic, 65 diastolic.

The white-cell count was 16,500. The urine contained no sugar. An electrocardiogram revealed auricular fibrillation, with a rate of 90, and evidence of left-axis deviation. ST_1 and ST_2 were depressed, as were ST_4 and ST_4; T_1, T_2, T_3 and the T wave in CF_2 were upright; the T wave in CF_4 and CF_5 was diphasic.

The patient remained unconscious, cyanotic and dyspneic. Two hours after admission he was given oxygen, as well as 3 cc. of Cedilanid intravenously. The respirations became somewhat more regular, but the patient became restless and violent. Three cubic centimeters of paraldehyde was administered. The blood pressure fell to 80 systolic, 40 diastolic. The cyanosis increased. A unit of plasma was given intravenously. The heart sounds became distant, and the respirations assumed a Cheyne–Stokes character. After a short episode of tachycardia the patient expired, three hours after admission.

DIFFERENTIAL DIAGNOSIS

DR. ALAN R. MORITZ*: In a conference of this kind it is unusual to have a pathologist make the ante-mortem diagnosis. His position is generally a little more secure than mine is at the moment.

When an apparently healthy seventy-three-year-old man has an unexpected syncopal attack and dies shortly thereafter without regaining consciousness, the cause is usually found to be either a cerebral vascular accident or an acute coronary insufficiency. Am I correct in assuming that there was no reason to suspect that head injury had anything to do either with his collapse or with his subsequent death? When and where did he collapse and did anyone see him fall?

DR. GEORGE C. COTZIAS: He was at home and apparently was found lying on the bathroom floor.

DR. MORITZ: How long had he been unconscious before he was found?

DR. COTZIAS: No one knew how long he had been there, although they thought that it was probably less than half an hour.

DR. MORITZ: The reason I ask where the patient was found is that it is not particularly unusual for a person to strike his head when he falls as a result of a syncopal attack. Even though he may not have sustained a visible injury to the skull, subdural bleeding, sometimes bilateral, is often found at autopsy. I cannot be sure that that did not happen to this patient, but if it did, I regard it as an incident to the affair and not serious.

I am discarding cerebral apoplexy. I should be surprised if this man had collapsed and died as a result of intracerebral hemorrhage without sufficient clinical evidence to have at least warranted a lumbar puncture. I am reading between the lines a little bit in passing over this cerebral hemorrhage as I have, and I may not be justified in so doing. If I am wrong, my fault is in having too much confidence in the house officers. It does not appear that the patient manifested any signs or symptoms of cerebral disturbance that could not have been accounted for on a basis of circulatory failure. According to my clinical colleagues the electrocardiographic changes indicate coronary insufficiency. Am I correct in believing that there was no history suggestive of previous anginal attacks?

DR. COTZIAS: The history gave no evidence of angina.

DR. MORITZ: It is not at all uncommon for persons who have never complained of angina to die unexpectedly of coronary disease. Does the protracted period of unconsciousness that this man had between his initial seizure and his death detract from the diagnosis of acute coronary insufficiency? Considering his age I do not believe that it does. It is true that a young or middle-aged man is likely to die very quickly after the onset of an attack of coronary insufficiency of sufficient severity to cause

*Professor of legal medicine, Harvard Medical School.

syncope. It is not infrequent, however, for older men to survive such episodes of coronary insufficiency. Perhaps the presence of cerebral arteriosclerosis predisposes to loss of consciousness following a relatively small impairment of the systemic circulation.

I am somewhat disturbed at the extreme restlessness of this patient. His agitation was of such duration and violence as to require paraldehyde sedation. Although I know of no incompatibility between restless unconsciousness and the kind of cerebral anoxia that might result from coronary insufficiency, I must confess that I have never personally encountered so protracted a period of motor stimulation due to central circulatory failure. Of course brief agonal convulsive seizures frequently precede death from coronary disease, and restless unconsciousness or convulsions are often reported in the Stokes–Adams syndrome. I am willing then with some misgiving to accept the restlessness as an unusual but nevertheless plausible complication of circulatory failure caused by coronary insufficiency.

To me the leukocytosis is best explained as a reaction to a myocardial infarct that was probably present for some hours before the occurrence of the terminal syncopal attack. It appears that this recent infarct was at first asymptomatic. Perhaps his collapse and death were due to tamponade caused by rupture of the heart at the site of a recent and previously asymptomatic infarct.

Dr. Benjamin Castleman: Are there any further comments?

Dr. Paul D. White: The electrocardiogram is somewhat equivocal. It is not normal. It may indicate some disturbance in the circulation to the posterior wall of the left ventricle, but it is not typical of a posterior myocardial infarction. There is no elevation of the ST segments in Leads 2 and 3, although there is considerable ST depression in Leads CF_4 and CF_8.

Dr. Moritz: I recognize that my clinical colleagues were at a disadvantage in expressing an opinion based on a description rather than on an examination of the electrocardiograms themselves.

Dr. White: They would not have been able to do much more had they seen the films. The left-axis deviation could have gone with a hypertensive pattern, with the fibrillation due to cardiac irritability.

Dr. Chester M. Jones: I should like to raise the question of the advisability of giving plasma in a patient with beginning cardiac failure. It seems to me an unwise move. The mere fact that the blood pressure fell is no indication for the administration of plasma in a case of this sort.

Dr. Cotzias: We believed that the picture of shock was more pronounced than the picture of heart failure.

Dr. White: We have often raised that question, whether patients with acute coronary occlusion in shock may be helped by plasma. We do not know.

Dr. Jones: It is an important therapeutic decision to make in a case like this in which some harm might ensue.

Dr. White: It is conceivable that it might help if the myocardium has sufficient reserve.

Clinical Diagnosis

Myocardial infarction?
Cerebrovascular accident?

Dr. Moritz's Diagnoses

Coronary thrombosis.
Myocardial infarct.
Rupture of myocardial infarct, with cardiac tamponade?

Anatomical Diagnoses

Media necrosis aortica cystica, with rupture of aorta into pericardium.
Cardiac tamponade.

Pathological Discussion

Dr. Castleman: At autopsy the pericardium was filled with a liter of fresh unclotted blood. It arose not from a tear of the myocardium but from one of the ascending aorta. The aortic lesion was not a dissecting aneurysm, however, but a complete through-and-through tear of an aorta that had the severest media necrosis cystica that we have ever seen. It is the first case that we have had where the external rupture occurred simultaneously with the intimal tear, so that there was no chance for dissection.

Dr. White: There might have been some occluding pressure from the blood around the right coronary artery, which would explain the electrocardiographic changes.

Where was the point of rupture?

Dr. Castleman: In the ascending aorta, about 1.5 cm. above the valve.

Dr. White: Did slow bleeding occur before hemorrhage took place into the pericardium?

Dr. Castleman: I do not believe that the patient could have gone into syncope unless he had had a lot of bleeding at first. If it were a slow leak, he probably would not have fallen. He must have had a large rupture at the start and lived for four and a half hours.

Dr. White: Do you think that it all might have been due to tamponade?

Dr. Castleman: Yes, but he must have had a major break at the start to cause him to faint. We have had a few patients with syphilitic aneurysms who have lived for some time after symptoms of rupture. What is the sequence of events in your experience with ruptured aneurysm, Dr. Moritz? Do such patients often have a hiatus before they die?

Dr. Moritz: We have had two or three who have. I am surprised in this case that the man bled enough

into the pericardial sac to lose consciousness and yet was able to survive for three or four hours.

DR. WHITE: Did he bleed in both directions along the aorta?

DR. CASTLEMAN: All along the adventitia of the aorta and the pulmonary artery. The hemorrhage even extended along the adventitial coats of the smaller pulmonary arteries into the lung, a condition that we have seen before in patients with ruptured aortas.

CASE 32082

PRESENTATION OF CASE

A forty-four-year-old Irish truck driver was admitted to the hospital complaining of shortness of breath, orthopnea and edema of the legs.

Four years before admission he had been rejected by his draft board because of "heart disease." He remained symptomless, however, until fourteen months before admission, when he complained of weakness and fell while working. Although he stopped work, he noticed, five months later, that he was gradually losing weight. He developed anorexia, vomiting, abdominal pain, dyspnea and orthopnea. He was digitalized and his symptoms subsided. He was easily fatigued and had anterior chest pain on exertion. Four months before admission he discontinued digitalis and resumed full-time work. Soon, however, without any preceding trauma, infection or undue exertion, he noticed the sudden onset of extreme shortness of breath. He also complained of pain in the anterior chest. Two months later he again consulted his physician, who gave him more digitalis. Three weeks before admission he was confined to bed, and two weeks later he entered another hospital, where he received digitalis and ammonium chloride. After leaving the hospital of his own volition, he began to cough up small amounts of thin, bloody sputum, and swelling of the legs progressed rapidly. For the two days before admission he had passed no urine.

The past history revealed no evidence of rheumatic fever or venereal disease.

Physical examination revealed a well developed and nourished man who was dyspneic, orthopneic and cyanotic. He did not complain of pain. Severe arteriosclerosis was apparent. The fingers were clubbed. The pupils were normal. The neck veins were pulsating. The heart was enlarged to the right and to the left, the left border being 12 cm. from the midline in the fifth intercostal space. The point of maximal impulse was in the anterior axillary line at the sixth interspace, with a forceful thrust. A Grade III diastolic murmur and a Grade I systolic murmur were heard at the apex, and both were transmitted to the axilla. A Grade II diastolic murmur and a Grade I systolic murmur were heard over the aortic area. The latter was transmitted to the neck. The aortic second sound was obliterated. A diastolic thrill was palpable in the suprasternal notch. The left lung was clear. At the right base, fremitus was absent, breath sounds were diminished, and crackling inspiratory rales were heard; percussion revealed flatness over this area. The abdomen apparently contained no fluid. The liver edge was palpable four fingerbreadths below the right costal margin; it was firm, sharp, slightly tender and not pulsating. The spleen was not felt. The lower extremities showed marked pitting edema, which extended to the hips.

The temperature was 97°F., the pulse 80, regular and full, and the respirations 20. The blood pressure was 115 systolic, 75 diastolic.

The red-cell count was 4,900,000, with 14.6 gm. of hemoglobin. The white-cell count was 11,700. The urine was clear and acid, with a specific gravity of 1.017. It gave a +++ test for albumin, and the sediment contained 25 white cells, no red cells and many granular and hyaline casts per high-power field. The nonprotein nitrogen was 31 mg. per 100 cc., the total serum protein 5-2 gm., and the prothrombin time 30 seconds (normal, 18-20 seconds). A blood culture was negative.

An x-ray film of the chest on admission revealed that the heart was large, especially in the region of the left ventricle, which was extended downward and laterally. The cardiothoracic ratio was approximately 20:29.8. The left auricle was enlarged. There were areas of calcification in the region of the mitral and aortic valves. The hilar and pulmonary vessels were diffusely engorged, and both lungs were hazy. There was a small amount of fluid in both pleural cavities. There was a localized area of increased density in the right costophrenic sinus, which in the lateral view was seen to be round. A similar area was seen somewhat higher in the right lower lobe in close contact with the interlobar septum.

Three days after admission, the patient's edema had markedly subsided but the temperature continued to rise, reaching as high as 102°F. Hemoptysis continued, and the liver remained enlarged. The fluid in the right pleural cavity increased. A friction rub was heard for a short time in the right axilla and then disappeared.

Another chest film taken on the sixth hospital day showed hazy homogeneous density occupying the lower half of the right lung field and obscuring the outline of the diaphragm and heart. Jaundice appeared on the eighth hospital day. On the ninth hospital day, 1100 cc. of bloody fluid was removed from the right pleural cavity. It had a specific gravity of 1.012, with 37,000 red cells and 1700 white cells per cubic millimeter, 44 per cent of the latter being polymorphonuclear cells and 56 per cent lymphocytes. The following day, after a period of fluttering, irregular heart action, the patient expired.

Differential Diagnosis

Dr. Robert S. Palmer: On the basis of the physical findings, namely the orthopnea, dyspnea, cyanosis, edema and engorged liver, we feel sure that this forty-four-year-old man had congestive heart failure. There was a large heart with enlargement outward and downward, and at the apex there were a loud diastolic murmur and a slight systolic murmur. At the base there were a slight systolic murmur, transmitted to the neck, and a moderate diastolic murmur. The diastolic murmur at the apex may have been a murmur transmitted from the base. Aortic systolic murmurs may be heard at the apex but are less likely to be than are diastolic murmurs. The patient was rejected by his draft board four years previously, which may mean cardiac enlargement or murmurs at that time. I believe that this man had valvular heart disease, probably rheumatic, and although the characters of the murmurs are not well described, the apical murmurs are those of mitral stenosis and regurgitation. We must then consider aortic valvular disease and wonder, because of the obliteration of the aortic second sound and the transmission of the systolic murmur to the neck, if he did not have aortic stenosis. If he had aortic stenosis, on a statistical basis it was probably rheumatic. We know that one can rarely have pure calcareous valvular disease, Mönckeberg's sclerosis, but much oftener calcareous disease is superimposed on an old rheumatic lesion. Of course, calcareous disease is sometimes superimposed on a congenital valvular deformity, such as a bicuspid aortic valve. If we consider aortic stenosis, we should also consider congenital subaortic narrowing, which is sometimes confused with acquired aortic stenosis. One might also consider the possibility of syphilis. We are given no information about serologic tests, but because aortic stenosis rather than regurgitation is probable, it is unlikely that he had syphilitic valvular disease. Of course, if he had marked aortic valvular disease, the diastolic murmur at the apex could have been due to relative or functional mitral stenosis.

The history is consistent with these possibilities. We know that he was rejected by the draft board. Since there is no note of murmurs' having been heard during early life, we may exclude congenital lesions. Fourteen months before admission he experienced faintness or weakness, which is not infrequent in patients with aortic lesions, particularly an aortic stenosis. Nine months before admission he had anorexia, vomiting, abdominal pain and some shortness of breath, which are probably signs of visceral passive congestion. Evidently this was relieved by digitalis. Later he had sudden paroxysmal dyspnea, without preceding trauma or exertion. We have no observations of any change in the murmurs. I do not suspect a ruptured aortic cusp. Sudden paroxysmal dyspnea is of common occurrence in valvular disease, particularly aortic valvular disease, and I am inclined to think is especially frequent in patients with aortic stenosis. Later the patient got up and about, but after a period of partial disability he was put to bed with symptoms and signs of typical congestive heart failure. He was relieved by rest, diuretics and digitalis but finally was admitted to this hospital with recurrent congestive failure, having had anuria for two days.

In the x-ray film, the heart is apparently enlarged downward and outward, as one sees in cases of free aortic regurgitation. The patient, however, did not have the blood pressure of true aortic regurgitation. The general enlargement possibly went with congestive failure and dilatation of all chambers of the heart. The x-ray appearance of the heart is not the so-called "concentric hypertrophy" of pure aortic stenosis.

Subsequently the patient ran a fever. One blood culture was negative, and there is no evidence for making one think of subacute bacterial endocarditis superimposed on valvular disease, although it is possible that he may have a terminal endocarditis.

On the basis of the x-ray findings we are left with the same possibilities regarding the diagnosis of the valvular lesions. The enlargement of the left auricle leads one to believe that there was disease of the mitral valve, and in view of the murmurs at the apex, mitral stenosis and regurgitation seem likely. The outline of the heart, with the marked enlargement downward and outward, is enough to convince me that he had aortic valvular disease. Perhaps the moderate aortic diastolic murmur was transmitted to the apex, as it commonly is. The aorta was small. Free aortic regurgitation, even that due to rheumatic infection, is likely to show some aortic dilatation, although the dilatation is usually more marked in syphilitic disease. So, with the aortic murmur, the absent aortic second sound and the transmission of the systolic murmur to the neck I think that this man had some degree of aortic stenosis. The x-ray finding of areas of calcification indicates that he also had calcareous valvular disease. There were two shadows in the lung fields, one at least in contact with the pleura. Although encapsulated pleural fluid and metastatic tumor are possibilities, I should imagine that the best explanation in this case is that these areas in the x-ray films represent pulmonary infarctions.

May we see the x-ray films?

Dr. Milford D. Schulz: These films show what the protocol stated. The areas of calcification are in the region of the mitral ring and in that of the aortic valve. The aorta is not large. Here is an area of increased density in the right posterior gutter that looks like an infarct. I do not know why he should have one.

Dr. Palmer: How about the other one in the interlobar septum?

DR. SCHULZ: I am not sure about it. The fluoroscopist must have had more information than we have here.

DR. PALMER: The shadows of pulmonary infarctions do not necessarily have to appear wedge-shaped, do they?

DR. SCHULZ: They do not, but they are usually in contact with two pleural surfaces, as this one is described as being.

On the film made six days following the first examination, there is marked increase in the density of the right lower chest, some of which is probably due to fluid in the pleural sinus.

DR. PALMER: Does this film show much evidence of pulmonary congestion?

DR. SCHULZ: Yes; the hilar shadows are large on both sides, and the pulmonary markings are prominent throughout.

DR. PALMER: Is the large left auricle a true observation?

DR. SCHULZ: In the lateral view it looks as if there is enlargement of the left auricle. In the anteroposterior view what enlargement there is of the left auricle is overshadowed by the ventricle.

DR. PALMER: Jaundice appeared on the eighth day, and bloody fluid was removed from the pleural cavity on the following day, both of which are consistent with pulmonary infarction.

I believe that this man had valvular heart disease, probably rheumatic in origin, with some aortic regurgitation and aortic stenosis and, because of the size of the left auricle as seen by x-ray, with mitral stenosis and regurgitation. I think that the history is explained by these findings, with accompanying passive congestion and terminal multiple pulmonary infarctions. I am interested in the clubbing of the fingers, and wonder how often clubbed fingers are found in cases of congestive heart failure. They occur with infection associated with heart disease, as in subacute bacterial endocarditis and in active rheumatic infection. From the textbooks I could find nothing about the occurrence of clubbing of the fingers in congestive heart failure. Congestive failure with cyanosis may give clubbing. I have also seen clubbing in people with neither heart disease, pulmonary disease or any other recognizable disease. I am not sure of the explanation of that one finding. I should like to know if anyone has seen it in patients with plain congestive heart failure without cyanosis.

DR. TRACY B. MALLORY: Are there any questions or further discussion?

DR. DONALD KING: I have never seen clubbing of the fingers in plain congestive failure. I have seen a lot in lung disease.

DR. PALMER: In this case there is possibly another explanation of the clubbed fingers aside from the heart disease.

DR. KING: I should accept your diagnosis.

DR. JAMES A. TOWNSEND: This heart was extremely large. I wonder if it suggests that the patient had a valvular lesion on the right as well as on the left.

DR. PALMER: If he had tricuspid disease, one would expect a really big and pulsating liver.

CLINICAL DIAGNOSIS

Rheumatic heart disease, with aortic and mitral stenosis.

DR. PALMER'S DIAGNOSES

Rheumatic heart disease.
Aortic stenosis and regurgitation.
Mitral stenosis and regurgitation.
Congestive heart failure.
Hypertrophy and dilatation of heart.
General passive congestion.
Multiple pulmonary infarction.

ANATOMICAL DIAGNOSES

Calcareous aortic stenosis.
Congenital bicuspid aortic valve?
Hypertrophy of heart.
Chronic passive congestion.
Pulmonary embolism.
Infarcts of lung.
Thrombophlebitis of leg veins.

PATHOLOGICAL DISCUSSION

DR. MALLORY: The findings at autopsy were limited to the heart and lungs. The heart was extremely large, weighing 700 gm. The only lesion was in the aortic valve, which was markedly calcified. The mitral valve showed slight dilatation, measuring 12 cm. in circumference, and was slightly larger than the tricuspid valve. All cavities of the heart shared in the dilatation, and all showed some degree of hypertrophy. The right pleural cavity contained nearly a liter of blood-tinged fluid. There was some fresh fibrin on the pleural surface, and in the right lower lobe there were numerous infarcts of varying size. The arteries leading to these areas of infarction contained emboli, a number of them showing advanced organization, so that I think we can feel certain that attacks of pulmonary embolism had been occurring over a period of some weeks before death. Perhaps all the symptoms of the last few weeks of life can be explained by a series of emboli.

The aortic-valve disease was of a type that one sees not infrequently, which strongly suggests origin from a congenital bicuspid valve. Two valves were completely fused at one commissure. The other commissures were quite normal. Heavily calcified masses filled the sinuses of Valsalva, and the calcification extended from the base of the cusps almost up to the very edge. The lumen was reduced to a V-shaped slit. I was unable to see anything on the mitral valve that I could definitely diagnose as rheumatic involvement, nor could I

find any microscopic evidence of rheumatic infection in the myocardium. On the other hand, I realize that I am a prejudiced party on this issue. I can rarely find microscopic evidence of rheumatic involvement in a case of calcareous aortic stenosis, whereas other pathologists find it quite often.

DR. CHARLES S. KUBIK: Did you find a source for the emboli?

DR. MALLORY: There were numerous thrombi in the leg veins. The larger veins were free, but when we cut into the muscles of the calf, the intramuscular vessels were thrombosed and there was some degree of myositis of these calf muscles as well. I personally think that the onset of jaundice was connected with the pulmonary infarction. Any great degree of jaundice is unusual with simple congestive failure, but with the onset of pulmonary infarction it becomes almost the rule rather than the exception.

The New England
Journal of Medicine
Formerly
The Boston Medical and Surgical Journal
Established 1828

Owned by the Massachusetts Medical Society and Published under the Jurisdiction of the Committee on Publications

Richard M. Smith, M.D., *Chairman*
James P. O'Hare, M.D. Conrad Wesselhoeft, M.D.
Oliver Cope, M.D. John Fallon, M.D.

Official Organ of
The Massachusetts Medical Society
and
The New Hampshire Medical Society

Editorial Board

Joseph Garland, M.D. A. Warren Stearns, M.D.
Shields Warren, M.D. Chester S. Keefer, M.D.
C. Guy Lane, M.D. Fletcher H. Colby, M.D.
William A. Rogers, M.D. Robert L. Goodale, M.D.
Henry R. Viets, M.D. Chester M. Jones, M.D.
Robert M. Green, M.D. Harvey R. Morrison, M.D.
Charles C. Lund, M.D. Maxwell Finland, M.D.

Associate Editors

Thomas H. Lanman, M.D. Donald Munro, M.D.
Henry Jackson, Jr., M.D.
Walter P. Bowers, M.D., Editor Emeritus
Robert N. Nye, M.D., Managing Editor
Clara D. Davies, Assistant Editor

Subscription Terms: $6.00 per year in advance, postage paid, for the United States (medical students, $3.50 per year); Canada, $7.04 per year (Boston funds); $8.52 per year for all foreign countries belonging to the Postal Union.

Material should be received not later than noon on Thursday, two weeks before date of publication.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to the *New England Journal of Medicine*, 8 Fenway, Boston 15, Massachusetts.

RATION'S END?

We are being prepared, at the time of this writing, for the abandonment of sugar rationing at some time in the not too distant future, and with it the ending of the entire food rationing program. This does not necessarily indicate an abundance of sugar on the way, any more than the removal of restrictions on other foods has been followed by a surfeit of the market with them, — butter and margarine are currently not to be found in the local stores, — nor does it mean that we shall be living hereafter in a land of corn and wine, whatever definition may be given to the former word in this particular. It does mean that soon a Cuban and later a Philippine crop of sugar will place this article of food in the ranks of others supposed to be reasonably plentiful, and the members of medical advisory committees may end their tasks with heads unbowed, if bloody.

Sugar, as a rationed commodity, has rarely been found by the Medical Advisory Committee to the Regional Office of Price Administration to be required in larger quantities than those allowed by basic rationing. Other sugars and other forms of carbohydrate have been too easily available, and there are few diseases, if any, that require cane sugar in their treatment. It is therefore at least of interest to note the numbers of persons uncovered since local rationing boards went out of existence who have been receiving extra allotments of sugar, apparently without benefit of approval by any medical advisory committee. In fact, a recent report from the Regional Office of Price Administration since the files from the state have been consolidated, indicates that more than 2000 persons in Massachusetts have regularly been receiving extra sugar since 1942, of which number only a very small fraction had ever had their requests reviewed, as required by regulation, by a medical advisory committee. No one had realized how much sweetness was being wasted on the desert air!

Two thousand out of a population of 4,316,721 is no great matter, and we might, indeed, consider with amazement the fact that so few have owed so little to so many. In our sturdy democracy, however, where each rationing board might well have sought to be a law unto itself, we now wonder, idly, how many other importunate persons may have owed their teeming fleshpots to a local handout.

WAIVER OF DISABILITY

Attention is called to a letter published elsewhere in this issue of the *Journal* in which the commanding officer of an overseas station hospital clarifies a misunderstanding concerning the so-called "waiver of disability" on the part of an officer entering the armed services of the United States. There can be no doubt that it is generally believed that, if a man or woman accepts a commission in the Armed Services and at the same time has a physical defect that can serve as a source of future trouble, he expects, as part of the sacrifice he must make for his country, to "sign a waiver," which will

release the Government from all responsibility for the care of conditions subsequently arising out of the disability that has been waived.

Such a belief seems to be entirely wrong. If the author of the letter is correct, — and there is no reason to suppose that he is not, — this false belief is based on an equally erroneous misconception. It is the Government that does the "waiving." By so doing it does not deprive the physically defective officer of his right to obtain redress for disablement arising in the line of duty even though it may be secondary to his disability. Instead, the Government assumes the risk and "accepts the person in spite of the defect."

This is an important point, and one that should be drawn to the attention of all veterans. From conversations heard here and there it is apparent that there are a considerable number of disabled veterans who think that they are not entitled to apply for benefits from the Government because they waived their rights to make such application when they entered the service. Veterans' organizations should publicize this mistake so that it can be corrected at once. Such veterans should be no longer deprived of the help that they may need badly and are certainly entitled to.

MASSACHUSETTS MEDICAL SOCIETY
POSTWAR LOAN FUND

The Postwar Loan Fund has been set up, and all discharged medical officers who were members of the Massachusetts Medical Society in good standing at the time of their entry into the service may apply for loans from this fund. For further information apply to:

George L. Schadt, *Chairman*
Postwar Loan Fund
8 Fenway
Boston 15, Massachusetts

MASSACHUSETTS MEDICAL SOCIETY

DEATHS

MULLIGAN — Francis J. Mulligan, M.D., of Newton, died February 5. He was in his forty-fifth year.

Dr. Mulligan received his degree from Boston University School of Medicine in 1928. He was Newton school physician and a member of the staff of the Newton-Wellesley Hospital.

His widow, four sisters and a brother survive.

STEVENS — Harry L. Stevens, M.D., of New Bedford, died January 29. He was in his seventy-sixth year.

Dr. Stevens received his degree from Baltimore Medical College in 1891. He was formerly physician to the overseer of the poor and city physician. In 1936 he was appointed to a seven-year term on the State Board of Registration in Medicine.

TIMMINS — Edward F. Timmins, M.D., of South Boston, died December 11. He was in his sixty-fifth year.

Dr. Timmins received his degree from Harvard Medical School in 1904. He served for many years as medical inspector of the South Boston district and supervising physician for the Boston School Department. He was a member of the South Boston Medical Club, of which he had been president. He became a fellow of the Massachusetts Medical Society in 1911 and first served as councilor in 1936; he was subsequently appointed to the Committee to Study the Practice of Medicine by Unregistered Persons and was elected a censor by his district society in 1944.

His widow, two sons and two daughters survive.

WOODWARD — Samuel B. Woodward, M.D., of Worcester, died January 29. He was in his ninety-third year.

Dr. Woodward received his degree from Harvard Medical School in 1878. He spent more than two years studying abroad. For many years he was consulting and visiting surgeon at St. Vincent and Worcester City hospitals. He was a trustee of Worcester State Hospital and chairman of its board of trustees. He was a former president of the Massachusetts Medical Society and also of the Alumni Association of Boston City Hospital. He was a fellow of the American Medical Association and of the American Academy for the Advancement of Science. He retired in 1921 after forty years of practice.

NEW HAMPSHIRE MEDICAL SOCIETY

SCOTT — Nathaniel H. Scott, M.D., of Wolfeboro, died January 25. He was in his ninety-fifth year.

Dr. Scott received his degree from Bowdoin Medical School, Maine, in 1874. He had practiced general medicine and surgery in Wolfeboro from 1880 until his retirement about twenty years ago.

His widow, a son and five daughters survive.

MISCELLANY

DEPARTMENT OF ANESTHESIA AT McGILL

The Department of Anesthesia has recently been created at McGill University, according to Dr. Wesley Browne, chairman of the department. Its stated objectives are as follows: to improve the teaching of anesthesia to the undergraduate student in medicine; to enhance the opportunities for learning anesthesia by the interns of the hospitals connected with the University; to maintain a three-year diploma course in anesthesia for those graduates in medicine who desire to become specialists; and to develop investigation in anesthesia, both within the department, correlating the clinic and the laboratory, and in co-operation with other departments of the University.

AMERICAN BOARD OF OPHTHALMOLOGY

In regard to the substitution of a preceptorship for residency in an ophthalmic hospital, Dr. S. Judd Beach, secretary of the American Board of Ophthalmology states that the Board has always accepted such training in favorable cases. It should, however, be pointed out that neither a residency nor a preceptorship suffices in itself to meet the requirements of the Board. Each case will still be judged on its merits in determining fitness for examination.

In entering on a preceptorship, certain conditions should be kept in mind. First the student will profit most after a sound course in the basic sciences of the eye and of vision, such as optics, physiology, pathology, bacteriology, chemistry, pharmacology, anatomy, embryology and neurology, and in the relation of the eye to general disease. This is essential for a residency, more so for a preceptorship.

Although men have been accepted from preceptors not diplomates of the Board, it is obvious that the Board has more information about those teachers who have passed its examinations. Any preceptor should understand that he is assuming a responsibility in taking a student and is not merely obtaining help in the drudgery of his office. He should be willing to give time to clinical training and the use of apparatus, such as the slit-lamp, ophthalmoscope and tonometer, and to directing the student's practice in surgery on animal eyes, assisting in operations and ultimately in the performance of them.

To cover the same amount of ground will take much longer in a preceptorship than in a residency, and students should accept opportunities to take hospital positions of all sorts as they become available.

CORRESPONDENCE

WAIVER OF DISABILITY AND THE ARMY'S NEED FOR SENIOR MEDICAL OFFICERS

To the Editor: Reference is made to the letter "An Appeal," signed by W. A. R. Chapin, that appeared in the October 4, 1945, issue of the *Journal*. In this letter I note the statement that the medical officer in question "waived a disability." This is an error that is widespread and should be corrected.

For nearly three years I was on the staff of the surgeon of one of the nine service commands in the Continental United States, during which time I was the sole arbiter of who was or was not physically qualified for military service. This period covered the expansion of the armed forces, which began in September, 1940. I therefore speak with a detailed and accurate knowledge of the factors involved.

No officer ever waived or signed a waiver of his physical defects. Late in 1941, for reasons not clear to me, the War Department adopted certain policies in the case of officers who had defects that technically disqualified for military service. Briefly stated the policy was to require an officer who was found to have certain defects to sign a certificate admitting the presence of the defect and requesting that the defect be waived for the purpose of entering on active duty. If the reviewing authority decided that the defect did not constitute a bad military risk he (the reviewing authority) accepted the officer for general or limited military service and waived the defect for the Government. The subject officer waived nothing!

One cannot legally waive a defect that he or she may have. There are Supreme Court decisions on this, which may be briefly summarized as follows: The right to compensation is a statutory right and as such cannot be waived by a person as a condition of employment by or service in the armed forces. In other words, a defect existing prior to entry into the service, which becomes aggravated to a disabling degree by reason of service in the armed forces, is compensable just as though the defect were incurred by reason of such service. Thus, by waiving the defect, or more correctly, by accepting the person in spite of the defect, the Government assumes the risk.

I shall not attempt to pass judgment on the complaint offered by the officer who wrote the letter, but I must speak in defense of the Army. I believe that I am qualified, since I have been in command of a large hospital out here for almost two years.

In the mad rush to get physicians out of the Army the hospitals in the Pacific are being stripped of competent professional personnel. Transfer of medical officers with high-point scores removes the most competent ones. The low-point men who remain are, almost without exception, rather recent graduates with no qualifications in any specialty. As matters now stand, I shall lose my chiefs of medicine and surgery in January, and so far as I now know, they will of necessity have to be replaced by young men who have no special qualifications for such vitally responsible positions. What recognized civilian hospital would accept as a consultant in surgery a physician who had graduated in 1942, had served a nine-month internship and had then acted as a ward surgeon or assistant for two years? The answer is obvious, but that is exactly the situation we are now confronted with out here. The consequences may well result in a Congressional investigation that could not fail to reflect unpleasantly on the profession.

This station hospital is now part of the permanent garrison on an island that is (or was) an integral part of the Japanese Empire. I am *not* a Regular Army officer but an old reservist from the last war who has been on active duty for more than five years and who has volunteered to remain out here until April 1, 1946, in an effort to reorganize this hospital with such personnel as is available. I have had an almost complete turnover of personnel since V-J Day, and within the next six weeks I shall be the only person left in this organization who was in it at that time. Most of the personnel are "fresh out from the States."

There are two sides to every question. This matter is particularly difficult, especially for those of us in command positions.

COLONEL ——— ———, M.C., A.U.S.
Commanding

NOTICES

ANNOUNCEMENTS

Dr. F. Dennette Adams has returned from military service and resumed the practice of internal medicine at 226 Marlborough Street, Boston 16.

Dr. Robert H. Barker, having returned from service in the United States Navy, is resuming the practice of obstetrics and gynecology at 330 Dartmouth Street, Boston.

Dr. Martin A. Berezin, having returned from active service with the United States Army Medical Corps, announces the opening of his office at 117 Bay State Road, Boston, for the practice of psychiatry and neurology.

Dr. J. Charles Drooker, having recently completed military service in the United States Army, is resuming the practice of diseases of the ear, nose and throat at Hotel Gralyn, 20 Charlesgate West, Boston.

Dr. Robert H. Goodwin, having returned from active duty in the United States Navy, is resuming the practice of obstetrics and gynecology at 15 South 6th Street, New Bedford.

Dr. Ward I. Gregg announces his return from military service and the reopening of his office for the practice of gynecology and surgery at 266 Beacon Street, Boston.

Dr. Thomas M. Hearne, having been released from active duty with the United States Navy, announces the reopening of his office at 43 Stratford Road, Melrose, for the practice of medicine and obstetrics.

Dr. I. H. Jaffee, having returned from active service with the United States Army, announces the opening of his office at 483 Beacon Street, Boston, for the practice of allergy.

Dr. Allen S. Johnson announces his return from service with the United States Navy and the opening of an office at 276 Bridge Street, Springfield.

Dr. James J. Regan has resumed the practice of ophthalmology at 520 Commonwealth Avenue, Boston.

Dr. Henry R. Viets announces the removal of his office from 262 Beacon Street to 20 Gloucester Street, Boston.

SOCIETY MEETINGS AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING THURSDAY, FEBRUARY 28

FRIDAY, MARCH 1
*10:00 a.m.–12:00 m. Medical Staff Rounds. Peter Bent Brigham Hospital.

10:50 a.m. Systemic Therapy of Skin Conditions. Dr. George E. Morris. (Postgraduate Clinic in Dermatology and Syphilology.) Amphitheater, Dowling Building, Boston City Hospital.

MONDAY, MARCH 4
*12:00 m.–1:00 p.m. Clinicopathological Conference. Peter Bent Brigham Hospital.

(*Notices continued on page xxi*)